

MEMORANDUM

TO: Todd Dumais
Technical Advisory Committee

FROM: Mark G. Vertucci, PE, PTOE
Matthew Skelly, PE

DATE: October 14, 2016

RE: New Park Avenue Transit Area Complete Streets Study
Evaluation of Preliminary Alternatives

This memo is the third in a series of three to be presented to the Technical Advisory Committee as well as the Town of West Hartford regarding the New Park Avenue Transit Area Complete Streets study. Previously, an Existing Conditions Memo was issued on May 2, 2016 to convey the history and current conditions of New Park Avenue. More recently, the Generation of Preliminary Alternatives Memo was issued on October 10, 2016 to introduce the technical efforts related to the development of the preliminary alternatives. This memorandum will serve to subsequently evaluate the suitability of each alternative as it relates to Complete Streets design, facilitating Transit Oriented Development, and maintaining existing traffic flow.



Traffic Analysis

The existing traffic volumes, discussed in the May 2, 2016 Existing Conditions Tech Memo, were submitted to the Connecticut Department of Transportation (CTDOT) Planning Division who projected the counts to the 2030 design year. The future volumes provided by the State consider all pertinent land development plans in the area as well as any known construction projects that would divert additional trips onto New Park

Avenue during the time frame. This volume data is presented in *Appendix A*. All capacity analyses for the signalized study intersections were conducted using Synchro Professional Software, version 9.0, and copies of the analysis worksheets for all peak hours analyzed have been attached as *Appendix D* through *Appendix G*.

It should be noted that Alternatives 3 and 4 (presented in Preliminary Alternatives Memo) have essentially the same traffic operations. The main difference between the two options is the two-way left turn lane (TWLTL); Alternative 3 illustrates a paved two-way left turn lane while Alternative 4 provides the same space for a TWLTL, however between the Trout Brook Trail and Talcott Road this TWLTL is constructed as a colored, textured center lane and also incorporates sections of a raised median with built planters in areas where left turns are not needed. While the two options would vary slightly in terms of available turning area in certain locations, the traffic operations for the intersections analyzed are nearly identical. Given this similarity, the following analysis, tables, and Synchro reports are not duplicated for these two alternatives.

Capacity Analysis

In discussing intersection capacity analyses results, two terms are used to describe the operating condition of the road or intersection. These two terms are volume to capacity (v/c) ratio and level of service (LOS). The v/c ratio is a ratio of the volume of traffic using an intersection to the maximum number of vehicles that can utilize the intersection during an hour (its capacity). The v/c ratio can be used to describe the percentage of capacity utilized by a single intersection movement, a combination of movements, an entire intersection approach, or the intersection as a whole. LOS is a measure of the delay experienced by stopped vehicles at an intersection. LOS is rated on a scale from A to F, with A describing a condition of very low delay (less than 10 seconds per vehicle), and F describing a condition where delays will exceed 80 seconds per vehicle for signalized intersections.

Utilizing this methodology, the traffic data provided, and the current geometry of the corridor, the six signalized intersections within the study area are expected to experience an increase in the v/c ratio during the weekday morning, afternoon, and Saturday peak hours when traffic volumes are projected into 2030. This increase in traffic volume is primarily based on CTDOT's expectation that the number of residents in West Hartford, generally, and the number of vehicles accessing New Park Avenue will both increase in the referenced fourteen year time span.

However, not all study area intersections experience degradation in level of service when analyzed with projected 2030 traffic volumes. While the intersection of New Park Avenue and Talcott Road does have an increased v/c ratio, it remains at LOS B in all peak hours. Similarly, the intersection of New Park Avenue and Prospect Avenue will remain at LOS A in the weekday morning peak hour and LOS B in the afternoon and Saturday peak hours with the projected 2030 traffic volumes.

The analysis of 2030 volumes using the current geometry of New Park Avenue provides a base for comparison when evaluating the preliminary alternatives. For example, when compared to the 2030 condition, Alternative 1 performs best overall during the Saturday peak hour as opposed to during the weekday peak hours; while Alternative 2 performs best overall during the weekday morning peak hour. Either of these scenarios can be attributed to the design features of each alternative as well as their respective volumes through the corridor during that time of day. New Park Avenue functions generally as a commuter roadway during the week, with the majority of the volume heading north toward Hartford during the morning peak hour, and the majority of volume heading south, away from Hartford, during the afternoon

peak hour. This switch in the directional volume means that left turns onto Talcott Road, for example, would be easier to make during the morning peak hour when less opposing traffic is present.

Similarly, the analysis for Alternatives 3 and 4 revealed that New Park Avenue would operate most efficiently during the morning peak hour with delay time reductions for approaches to New Britain Avenue as well as Flatbush Avenue. These two highly congested intersections operate at a higher efficiency in these two Alternatives when compared to the projected 2030 scenario with no geometric or signal timing changes.

When comparing the four different Alternatives, it is clear that Alternatives 3 and 4 provide the most efficient traffic flow through the two most congested intersections, at Flatbush Avenue and at New Britain Avenue. While the afternoon peak hours at New Britain Avenue operate at LOS F, as it does in the existing condition, the Saturday peak hour operates acceptably at LOS D which is the highest LOS at this intersection observed throughout all alternatives. Similarly, Flatbush Avenue operates at LOS E or LOS F throughout each of the alternatives. However, with the adjustments made in Alternatives 3 and 4, the intersection at Flatbush Avenue improves to LOS D in both the weekday afternoon and Saturday peak hours.

For an overview of the evaluation of each alternative, *Table 1* of *Appendix B* has been provided as a summary of the level of service, v/c ratios, and overall delay times for all of the New Park Avenue study intersections. Synchro analysis worksheets are also located in *Appendix D* through *Appendix G*.

As shown in Table 1, Alternatives 3 and 4 provide the most efficient traffic operations throughout the corridor, while balancing Complete Streets design principles.

Queue Analysis

In addition to the capacity, the 95th percentile (design) queue lengths were also reviewed for each approach at each intersection in the study area under each of the alternatives. These queue lengths represent the maximum amount of queueing that can be expected at each of the critical approach lanes of the study area intersections during the peak hours analyzed. *Table 2* of *Appendix B* has been attached in order to provide a summary of the expected queue lengths based on the analysis incorporating year 2030 projected volumes based and the existing intersection geometry of New Park Avenue. *Table 3* through *Table 5* of *Appendix B* compile the expected 95th percentile queue lengths for each study intersection under each of the proposed Alternatives.

Overall the queue lengths in the suggested alternatives have increased throughout the corridor when compared to the queue lengths of the projected 2030 traffic volumes. While remembering that the projected 2030 scenario has no geometric or signal timing adjustments, this escalation is due to the aforementioned probable increase of people living and traveling through West Hartford, particularly the New Park Avenue area. Additionally, Alternatives 2, 3 and 4 include facilities to accommodate pedestrians, cyclists, motorists, and transit riders which consequently decrease available lane space for vehicle traffic while creating a safe multi-modal environment for all to use. It is understood that with the installation and proper maintenance of the proposed facilities, the vehicular use on New Park Avenue will decrease over time and therefore the queue lengths will also decrease proportionally.

In Alternative 1 the majority of the 95th percentile peak hour queue lengths are contained in the available storage at each intersection.



Planning and Design Workshop 2

Workshop 2 was the second of two public workshops conducted as a part of this study effort. Workshop 1 aimed to gain basic knowledge from the community that can only be acquired from daily use of the corridor. Using that information, a number of Alternatives were developed and those Alternatives were then presented back to the community at Workshop 2. Members of the Fuss & O'Neill team explained Alternatives 1-4 and how they incorporated the input received at Workshop 1 that led to various design elements. Two presentations were made at Workshop 2, one in the afternoon and another in the evening on April 24, 2016. Over the course of the day, over 20 members of the public came and offered feedback on the Alternatives. Copies of all workshop publications, posters, and data can be found in *Appendix C*.

The attending public was briefed on each alternative, the design features, traffic analysis, and landscape design of each option, as well as the potential for adjustments that could be made to the Town Zoning Ordinance that could be adopted in order to compliment the roadway options and further enforce the new feel and functionality of the corridor. The presentation was then opened up for discussion of the alternatives and any additional questions were addressed. Large format plans plotted to scale were also provided around the room so that participants could examine the layouts up close and physically draw in any remaining desirable features not depicted on them. All discussion points were noted for future reference in the development process.

One key design element discussed at Workshop 2 was how the separated bike lanes would be divided from traffic. The design called for a 2 foot painted median strip between the bicycle lanes and the traveled way as a safe separation method between the two modes of transport. This application has been used successfully in many municipalities throughout the country. The desire for a vertical separating element within the two foot buffer was also expressed by the community and was included as part of all options with this buffer.

Another concept discussed in some detail during the open discussion portion was the best way to incorporate Transit Oriented Development (TOD) along the corridor. In order to describe the shape of the corridor as it corresponds to TOD the analogy of a “barbell” was discussed to consider the two CTfastrak stations as hubs for TOD within a radius of approximately one-quarter mile. The space along the corridor in between the two ends of the barbell may be best served to continue its industrial and commercial uses while strengthening the multi-modal connectivity from Hartford moving south towards Elmwood as well as west towards West Hartford Center. The discussion also revealed that these TOD zones may create a natural incentive for developers, which will give the Town of West Hartford, and more importantly the New Park Avenue corridor a better opportunity to thrive.



Over the course of both Workshop 2 sessions, participants provided the most positive feedback about Alternative 2 and Alternative 4, both featuring separated bicycle lanes. The pocket parks at the Trout Brook Trail and leading up toward West Hartford Place were popular design features, providing users with a place to rest or leave their bicycles while patronizing local businesses. The TWLTL and planted median design features drew positive comments regarding alleviating congestion and weaving, as did the additional on-street parking in the Elmwood section of the corridor.

The community feedback gathered at this workshop, along with feedback received from Town staff, will largely inform the decisions made on the recommendations put forth by this study. After reviewing all of the feedback, one composite alternative will be developed to present to the Town of West Hartford as well as the Technical Advisory Committee. This will be an alternative that promotes an integrated complete streets transportation system for the multi-modal environment that is expected to continue to develop and thrive on New Park Avenue. It will support the precept stated in the Town’s Plan of Conservation and Development, to “sustain and preserve the Town of West Hartford as a complete community by maintaining neighborhood quality and promoting principles of Smart Growth.”



Design Characteristics

Across the four developed Alternatives, many different design features exist that can be incorporated into the overall New Park Avenue redesign to promote an integrated balance of Complete Streets concepts while also promoting TOD and increasing regional connectivity through West Hartford.

One prominent design characteristic is the two-way left turn lane (TWLTL) that is incorporated into all four of the alternatives, shown in Figure 1 below. The TWLTL allows vehicles making a left turn to be safely removed from the flow of through traffic, resulting in less mainline queueing as vehicles wait for a break in oncoming traffic to proceed with the turning maneuver. The integration of this characteristic also necessitates the provision of one lane of traffic flowing in each direction, making left turns more manageable by only having one lane of oncoming traffic to cross. This design feature provides increased safety for motorists, transit riders, pedestrians and cyclists who utilize the roadway.

Figure 1 - Two Way Left Turn Lane (TWLTL)



Another prominent design characteristic common to these alternatives is the dedicated bicycle accommodations that have been proposed, as seen below in Figures 2 and 3. In Alternative 2, the two-way separated bike lanes provide one 5.5 foot lane in each direction and a two foot painted buffer separating the cyclists from the motorists. This spacing provides a feeling of safety for all users by allowing adequate space for two oncoming cyclists to pass as well as the southbound traffic flow on New Park Avenue to travel alongside with minimal interaction. In Alternatives 3 and 4, the one-way separated bike lanes are located on either side of the roadway with each lane providing a 4.5 foot bicycle lane and a two foot buffer space as separation from the vehicular traffic.

Figure 2 – Two-Way Separated Bicycle Lanes



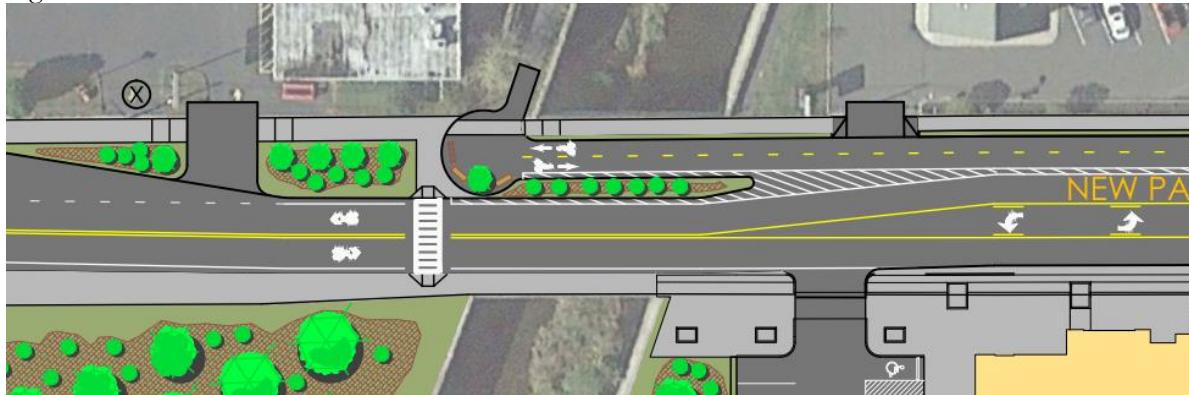


Figure 3 – One-Way Separated Bicycle Lanes



A unique design characteristic suggested for this project is the construction of pocket parks in each of the four alternatives. These small landscaped spaces, shown in Figure 4, provide an identifiable point for the Trout Brook Trail to join New Park Avenue and continue north through West Hartford Place in a safe and aesthetically pleasing manner. Allowing pedestrians to sit and relax while walking along New Park Avenue while also providing a place for cyclists to park their bikes and enjoy the corridor on foot will put more feet on the street and promote a more balanced travel way. As part of the streetscape, pocket parks would also aid in establishing a sense of place along New Park Avenue and has the potential to be an exceptional defining element of the corridor.

Figure 4 – Pocket Parks



Lastly, an important design characteristic depicted in Alternative 2, as well as in Figure 5 below, is on-street parking. This feature would provide more access to the Elmwood CTfastrak station as well as to the businesses along this southern section of New Park Avenue. This on-street parking could increase the economic viability of the Elmwood/New Park Avenue neighborhood and create a more desirable location for developers of mixed-use properties, which are an important aspect of Complete Streets and TOD.



Figure 5 – On-Street Parking



The net result of this combination of suggested design features is an environment in which motorists will be more inclined to travel at the speed limit given the limited lane space and proximity to cyclists, therefore increasing the feeling of safety for both. These features will also aid in creating a balanced traffic flow throughout the corridor as well as bringing more attention to the Trout Brook Trail. These features also serve as a compliment to works of art that could be incorporated to the landscape surrounding the corridor to further enhance the aesthetics of the neighborhood, helping to establish New Park Avenue as a destination instead of a throughway.

Right of Way Options

The final design consideration reviewed as a part of this study pertained to the portion of the corridor between the curb and the edge of the right of way. This space is outside of the lines that the Town of West Hartford is permitted to develop. Additional work outside of the right of way may also have a positive effect on the corridor, but is covered by zoning recommendations rather than design considerations.

Beginning with the narrowest section of this roadside design, 5 feet of space outside of the curb can be redesigned. A 5 foot concrete sidewalk with human scale lighting has the potential to make an industrial corridor feel safer and easier to navigate. The sidewalk could also be split longitudinally; with the inside 2.5 feet being built of brick or stamped concrete while the outside 2.5 feet remains concrete. Another possibility in the latter scenario would be to have a 2 foot banding along the edge of the stamped concrete to match the banding at the CTfastrak station. This is a small feature that would help to establish a sense of place and belonging to the New Park Avenue corridor.

In areas where more space is found between the edge of curb and the edge of the right of way, more options can be presented for redesign of the space. One of these options includes a 5 foot sidewalk with the inside or outside 2.5 feet being made up of a grass strip. This addition of green space not only provides a pleasant aesthetic, but also a permeable surface for rainwater runoff to aid in the management of stormwater. This green space is also usable for buffer plants or a small flowering tree. Adding vertical elements to a sidewalk landscape benefits the people on the sidewalk, motorists as well as the environment. People walking or biking along the roadway have some shade during the sunny summer months while the vertical elements help to focus motorists on the road ahead.

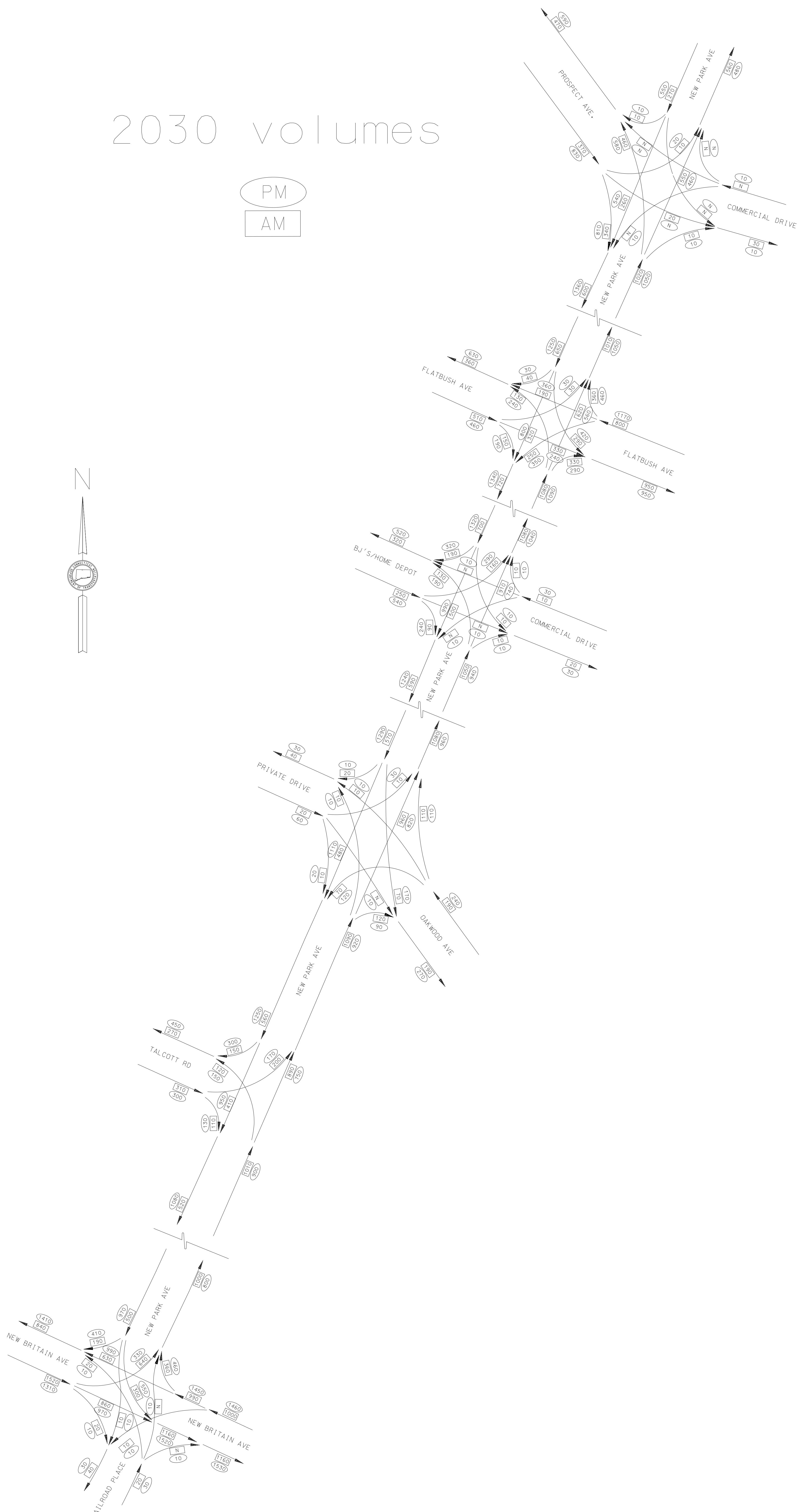
The more space that is available between the curb and the edge of the right of way, the more Complete Streets features can be incorporated into the New Park Avenue corridor design. These features are detailed, up to 15 feet within the right of way, in *Appendix H*, which also illustrates various streetscape options within the median of the TWLTL in Alternative 4.

Appendix A

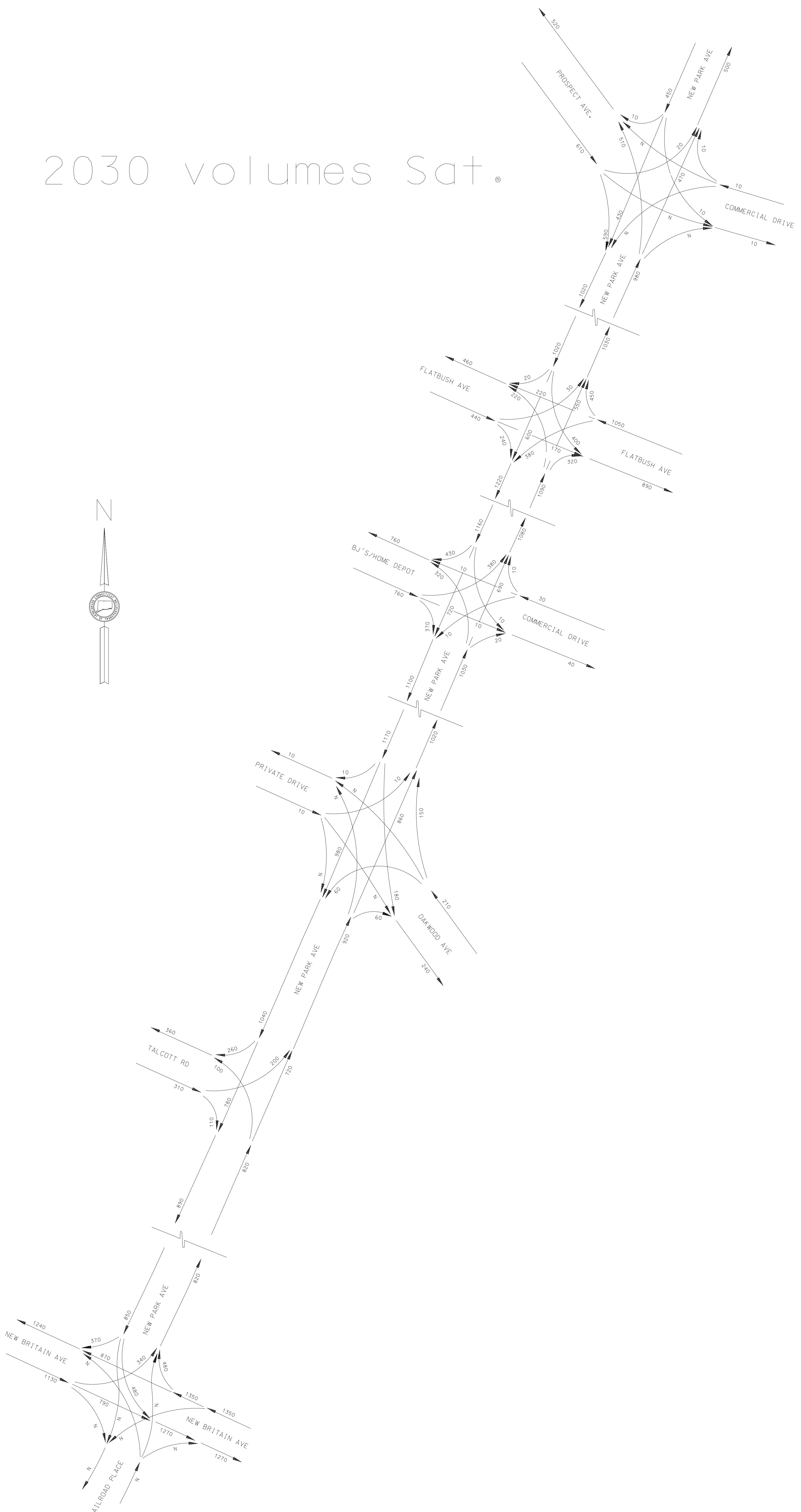
CT DOT – Traffic Volume Figures

2030 volumes

PM
AM



2030 volumes Sat



Appendix B

Tables

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Table 1

Signalized Intersection Level of Service Summary

New Park Avenue, West Hartford, Connecticut

Signalized Intersections	Peak Hours															
	Existing AM	2030 AM	Alt1	Alt2	Alt3 & 4	Existing PM	2030 PM	Alt1	Alt2	Alt3 & 4	Existing Saturday	2030 Saturday	Alt1	Alt2	Alt3 & 4	
New Park Ave at New Britain Ave	0.86/LOS C	1.48/LOS F	1.48/LOS F	1.20/LOS F	1.18/LOS F	0.92/LOS F LOS C/30s LOS F/160s LOS E/55s LOS C/35s	1.54/LOS F	1.54/LOS F	1.54/LOS F	1.32/LOS F	0.81/LOS C LOS B/15s LOS C/35s LOS A/0s LOS D/40s	1.08/LOS E	1.08/LOS E	0.97/LOS E	0.93/LOS D	
EB Approach	LOS B/20s	LOS F/225s	LOS F/225s	LOS F/150s	LOS F/135s		LOS F/215s	LOS F/215s	LOS F/215s	LOS F/115s		LOS E/70s	LOS E/70s	LOS D/45s	LOS C/35s	
WB Approach	LOS D/50s	LOS F/90s	LOS F/90s	LOS F/140s	LOS F/120s		LOS F/415s	LOS F/415s	LOS F/415s	LOS F/170s		LOS E/70s	LOS E/70s	LOS F/100s	LOS E/75s	
NB Approach	LOS E/55s	LOS D/50s	LOS D/50s	LOS E/80s	LOS E/75s		LOS F/1365s	LOS F/1365s	LOS F/1365s	LOS F/445s		LOS A/0s	LOS A/0s	LOS A/0s	LOS A/0s	
SB Approach	LOS D/50s	LOS D/45s	LOS D/45s	LOS D/45s	LOS D/50s		LOS C/30s	LOS C/30s	LOS C/30s	LOS D/55s		LOS C/25s	LOS C/25s	LOS C/35s	LOS D/40s	
New Park Ave at Talcott Rd	0.46/LOS B	0.61/LOS B	0.61/LOS B	0.64/LOS B	0.74/LOS B	0.44/LOS B LOS C/35s LOS A/10s LOS B/15s	0.68/LOS B	0.68/LOS B	0.84/LOS C	0.98/LOS C	0.44/LOS B LOS C/35s LOS A/10s LOS B/15s	0.58/LOS B	0.59/LOS B	0.80/LOS B	0.84/LOS B	
EB Approach	LOS C/35s	LOS D/40s	LOS C/35s	LOS C/35s	LOS C/35s		LOS C/35s	LOS C/35s	LOS D/50s	LOS D/40s		LOS D/40s	LOS C/35s	LOS D/45s	LOS D/50s	
NB Approach	LOS A/10s	LOS A/10s	LOS B/10s	LOS B/10s	LOS A/10s		LOS B/15s	LOS B/10s	LOS B/15s	LOS B/15s		LOS A/10s	LOS A/10s	LOS A/10s	LOS A/10s	
SB Approach	LOS B/15s	LOS B/15s	LOS B/15s	LOS B/20s	LOS B/15s		LOS B/20s	LOS B/10s	LOS B/20s	LOS D/35s		LOS B/20s	LOS A/10s	LOS B/20s	LOS C/25s	
New Park Ave at Oakwood Ave	0.47/LOS A	0.60/LOS B	0.53/LOS A	0.66/LOS A	0.74/LOS A	0.57/LOS B LOS C/25s LOS C/30s LOS A/10s LOS A/10s	0.75/LOS C	0.72/LOS B	1.05/LOS C	0.80/LOS B	0.50/LOS A LOS C/20s LOS C/25s LOS A/10s LOS A/10s	0.59/LOS A	0.55/LOS A	0.90/LOS B	0.62/LOS B	
EB Approach	LOS B/15s	LOS B/20s	LOS C/30s	LOS B/15s	LOS B/20s		LOS F/85s	LOS C/30s	LOS D/40s	LOS C/25s		LOS C/25s	LOS C/30s	LOS C/25s	LOS C/20s	
WB Approach	LOS B/20s	LOS C/25s	LOS C/35s	LOS B/15s	LOS C/25s		LOS F/160s	LOS D/35s	LOS F/110s	LOS C/30s		LOS C/25s	LOS C/30s	LOS C/25s	LOS C/20s	
NB Approach	LOS A/10s	LOS A/10s	LOS A/10s	LOS A/5s	LOS A/10s		LOS A/10s	LOS A/10s	LOS B/10s	LOS A/5s		LOS A/10s	LOS A/10s	LOS A/5s	LOS B/10s	
SB Approach	LOS A/10s	LOS A/10s	LOS A/5s	LOS A/5s	LOS A/5s		LOS A/10s	LOS A/10s	LOS B/15s	LOS B/15s		LOS A/10s	LOS A/10s	LOS A/10s	LOS B/10s	
New Park Ave at West Hartford Pl	0.47/LOS B	0.57/LOS B	0.46/LOS B	0.94/LOS B	0.64/LOS A	0.56/LOS B LOS B/20s LOS D/45s LOS A/10s LOS B/15s	0.71/LOS B	0.66/LOS C	0.99/LOS D	1.05/LOS D	0.68/LOS B LOS B/15s LOS D/40s LOS B/10s LOS B/15s	0.86/LOS B	0.71/LOS C	0.97/LOS C	0.98/LOS C	
EB Approach	LOS B/15s	LOS B/15s	LOS C/30s	LOS B/20s	LOS B/20s		LOS C/25s	LOS C/25s	LOS C/20s	LOS D/45s		LOS C/20s	LOS C/25s	LOS B/15s	LOS D/35s	
WB Approach	LOS C/25s	LOS C/25s	LOS D/40s	LOS C/25s	LOS C/25s		LOS D/35s	LOS D/45s	LOS C/35s	LOS D/45s		LOS D/40s	LOS D/40s	LOS D/40s	LOS E/70s	
NB Approach	LOS A/10s	LOS B/10s	LOS B/10s	LOS B/15s	LOS A/5s		LOS B/10s	LOS B/15s	LOS B/15s	LOS A/10s		LOS B/10s	LOS B/20s	LOS C/25s	LOS C/25s	
SB Approach	LOS B/10s	LOS B/15s	LOS B/10s	LOS B/15s	LOS B/10s		LOS B/20s	LOS C/25s	LOS F/95s	LOS D/55s		LOS B/15s	LOS B/15s	LOS D/55s	LOS C/25s	
New Park Ave at Flatbush Ave	0.73/LOS C	0.98/LOS F	0.99/LOS F	0.95/LOS E	0.90/LOS E	0.84/LOS D LOS D/45s LOS C/25s LOS D/55s LOS D/40s	1.09/LOS F	1.17/LOS F	1.09/LOS F	0.97/LOS D	1.01/LOS E LOS C/35s LOS C/25s LOS C/25s LOS F/165s	1.27/LOS F	1.23/LOS F	1.07/LOS E	1.05/LOS D	
EB Approach	LOS D/45s	LOS C/35s	LOS C/35s	LOS E/60s	LOS E/65s		LOS D/50s	LOS D/35s	LOS D/50s	LOS E/70s		LOS C/35s	LOS C/35s	LOS C/35s	LOS D/45s	
WB Approach	LOS C/25s	LOS B/15s	LOS B/15s	LOS D/40s	LOS D/40s		LOS C/25s	LOS C/25s	LOS C/25s	LOS C/30s		LOS C/25s	LOS D/45s	LOS C/20s	LOS C/25s	
NB Approach	LOS D/40s	LOS F/765s	LOS F/410s	LOS F/115s	LOS E/70s		LOS F/125s	LOS F/125s	LOS F/125s	LOS D/45s		LOS C/25s	LOS C/35s	LOS F/180s	LOS D/40s	
SB Approach	LOS C/30s	LOS D/40s	LOS F/95s	LOS E/75s	LOS D/50s		LOS F/210s	LOS F/120s	LOS F/210s	LOS E/60s		LOS F/165s	LOS F/245s	LOS F/85s	LOS D/45s	
New Park Ave at Prospect Ave	0.48/LOS A	0.48/LOS A	0.49/LOS A	0.68/LOS A	0.63/LOS A	0.41/LOS B LOS C/30s LOS C/35s LOS A/5s LOS A/10s	0.56/LOS B	0.62/LOS B	0.77/LOS B	0.78/LOS B	0.38/LOS B LOS C/30s LOS C/35s LOS A/5s LOS A/10s	0.47/LOS B	0.62/LOS B	0.69/LOS B	0.67/LOS B	
EB Approach	LOS B/15s	LOS C/30s	LOS A/10s	LOS B/15s	LOS B/10s		LOS C/30s	LOS C/30s	LOS A/10s	LOS B/15s		LOS C/30s	LOS C/30s	LOS A/10s	LOS B/15s	
WB Approach	LOS B/20s	LOS A/0s	LOS A/0s	LOS A/0s	LOS A/0s		LOS C/35s	LOS C/35s	LOS C/35s	LOS B/20s		LOS C/35s	LOS C/35s	LOS B/20s	LOS B/20s	
NB Approach	LOS A/10s	LOS A/5s	LOS A/5s	LOS A/10s	LOS A/5s		LOS A/5s	LOS A/5s	LOS A/5s	LOS A/10s		LOS A/5s	LOS A/5s	LOS A/10s	LOS A/10s	
SB Approach	LOS B/15s	LOS A/10s	LOS C/30s	LOS B/15s	LOS B/20s		LOS A/10s	LOS A/10s	LOS D/45s	LOS B/15s		LOS A/10s	LOS A/10s	LOS E/70s	LOS B/15s	

(v/c)/LOS X

*Delay times are rounded to the nearest 5s intervals

LOS X/Delay(s)*

Best overall Alternative for each intersection

Table 2
2030 Projected Queue Length Summary
New Park Avenue
West Hartford, Connecticut

Intersection	Approach Lane	Morning Peak Hour	Afternoon Peak Hour	Saturday Peak Hour	Storage Length
New Park Avenue at New Britain Avenue/Railroad Place	EB Left Turn EB Through WB Through WB Right Turn NB Approach SB Left Turn SB Through/Right	1050 Feet 405 Feet 440 Feet 185 Feet 20 Feet 275 Feet 0 Feet	555 Feet 450 Feet 825 Feet 90 Feet 40 Feet 505 Feet 65 Feet	460 Feet 285 Feet 545 Feet 175 Feet 0 Feet 415 Feet 5 Feet	300 Feet 450 Feet 450 Feet
New Park Avenue at Talcott Road	EB Left Turn EB Right Turn NB Approach SB Through SB Right Turn	210 Feet 25 Feet 160 Feet 110 Feet 25 Feet	160 Feet 35 Feet 130 Feet 290 Feet 45 Feet	185 Feet 35 Feet 115 Feet 225 Feet 40 Feet	300 Feet
New Park Avenue at Oakwood Avenue/Colt Driveway	EB Approach WB Left/Through WB Right Turn NB Approach SB Left Turn SB Through/Right	0 Feet 25 Feet 30 Feet 215 Feet 20 Feet 85 Feet	20 Feet 110 Feet 20 Feet 135 Feet 25 Feet 170 Feet	10 Feet 45 Feet 15 Feet 130 Feet 30 Feet 145 Feet	50 Feet 175 Feet
New Park Avenue at West Hartford Place/Raymore & Flannigan Driveway	EB Left Turn EB Through EB Right Turn WB Approach NB Left Turn NB Through/Right SB Left Turn SB Through SB Right Turn	65 Feet 30 Feet 20 Feet 0 Feet 50 Feet 275 Feet 10 Feet 135 Feet 15 Feet	130 Feet 130 Feet 40 Feet 40 Feet 150 Feet 235 Feet 10 Feet 405 Feet 15 Feet	160 Feet 165 Feet 50 Feet 40 Feet 300 Feet 245 Feet 15 Feet 265 Feet 20 Feet	190 Feet 190 Feet 190 Feet 300 Feet 190 Feet 250 Feet
New Park Avenue at Flatbush Avenue	EB Left Turn EB Through/Right WB Left Turn WB Through WB Right Turn NB Left Turn NB Through/Right SB Left Turn SB Left/Through	35 Feet 255 Feet 230 Feet 185 Feet 50 Feet 120 Feet 635 Feet 360 Feet 175 Feet	30 Feet 180 Feet 335 Feet 340 Feet 45 Feet 280 Feet 530 Feet 750 Feet 525 Feet	30 Feet 100 Feet 385 Feet 190 Feet 55 Feet 120 Feet 320 Feet 590 Feet 220 Feet	50 Feet 375 Feet 475 Feet 475 Feet 165 Feet 260 Feet
New Park Avenue at Prospect Avenue	EB Left Turn EB Right Turn WB Approach NB Approach SB Left/Through SB Right Turn	20 Feet 35 Feet 0 Feet 125 Feet 50 Feet 0 Feet	30 Feet 80 Feet 20 Feet 175 Feet 135 Feet 0 Feet	30 Feet 45 Feet 0 Feet 110 Feet 95 Feet 0 Feet	50 Feet

Table 3
Alternative 1 Queue Length Summary
New Park Avenue
West Hartford, Connecticut

Intersection	Approach Lane	Morning Peak Hour	Afternoon Peak Hour	Saturday Peak Hour	Storage Length
New Park Avenue at New Britain Avenue/Railroad Place	EB Left Turn EB Through WB Through WB Right Turn NB Approach SB Left Turn SB Through/Right	1050 Feet 405 Feet 440 Feet 185 Feet 20 Feet 275 Feet 0 Feet	555 Feet 450 Feet 825 Feet 90 Feet 40 Feet 505 Feet 65 Feet	460 Feet 285 Feet 545 Feet 175 Feet 0 Feet 415 Feet 5 Feet	300 Feet 450 Feet 450 Feet
New Park Avenue at Talcott Road	EB Left Turn EB Right Turn NB Approach SB Through SB Right Turn	175 Feet 20 Feet 170 Feet 55 Feet 5 Feet	150 Feet 35 Feet 120 Feet 210 Feet 20 Feet	165 Feet 30 Feet 125 Feet 120 Feet 20 Feet	300 Feet
New Park Avenue at Oakwood Avenue/Colt Driveway	EB Approach WB Left/Through WB Right Turn NB Approach SB Left Turn SB Through/Right	0 Feet 30 Feet 35 Feet 165 Feet 10 Feet 25 Feet	20 Feet 80 Feet 15 Feet 140 Feet 60 Feet 285 Feet	10 Feet 45 Feet 15 Feet 150 Feet 60 Feet 95 Feet	50 Feet 175 Feet
New Park Avenue at West Hartford Place/Raymore & Flannigan Driveway	EB Left Turn EB Through EB Right Turn WB Approach NB Left Turn NB Through/Right SB Left Turn SB Through SB Right Turn	85 Feet 40 Feet 25 Feet 0 Feet 70 Feet 210 Feet 5 Feet 125 Feet 65 Feet	145 Feet 145 Feet 40 Feet 40 Feet 135 Feet 240 Feet 15 Feet 470 Feet 25 Feet	150 Feet 150 Feet 45 Feet 40 Feet 305 Feet 185 Feet 5 Feet 295 Feet 15 Feet	190 Feet 190 Feet 190 Feet 300 Feet 190 Feet 250 Feet
New Park Avenue at Flatbush Avenue	EB Left Turn EB Through/Right WB Left Turn WB Through WB Right Turn NB Left Turn NB Through/Right SB Left Turn SB Left/Through	35 Feet 250 Feet 325 Feet 235 Feet 60 Feet 115 Feet 475 Feet 260 Feet 130 Feet	25 Feet 145 Feet 265 Feet 345 Feet 140 Feet 170 Feet 365 Feet 505 Feet 330 Feet	25 Feet 90 Feet 305 Feet 175 Feet 110 Feet 140 Feet 380 Feet 465 Feet 225 Feet	50 Feet 375 Feet 475 Feet 475 Feet 165 Feet 260 Feet
New Park Avenue at Prospect Avenue	EB Left Turn EB Right Turn WB Approach NB Approach SB Left/Through SB Right Turn	25 Feet 15 Feet 0 Feet 275 Feet 140 Feet 0 Feet	35 Feet 25 Feet 25 Feet 360 Feet 355 Feet 0 Feet	35 Feet 25 Feet 0 Feet 280 Feet 340 Feet 0 Feet	50 Feet

Table 4
Alternative 2 Queue Length Summary
New Park Avenue
West Hartford, Connecticut

Intersection	Approach Lane	Morning Peak Hour	Afternoon Peak Hour	Saturday Peak Hour	Storage Length
New Park Avenue at New Britain Avenue/Railroad Place	EB Left Turn EB Through WB Through WB Right Turn NB Approach SB Left Turn SB Through/Right	1170 Feet 445 Feet 590 Feet 275 Feet 25 Feet 355 Feet 25 Feet	555 Feet 450 Feet 825 Feet 90 Feet 40 Feet 505 Feet 65 Feet	450 Feet 325 Feet 725 Feet 315 Feet 0 Feet 570 Feet 55 Feet	300 Feet 450 Feet 450 Feet
New Park Avenue at Talcott Road	EB Left Turn EB Right Turn NB Approach SB Through SB Right Turn	205 Feet 25 Feet 200 Feet 170 Feet 5 Feet	245 Feet 40 Feet 110 Feet 595 Feet 5 Feet	250 Feet 35 Feet 120 Feet 590 Feet 10 Feet	300 Feet
New Park Avenue at Oakwood Avenue/Colt Driveway	EB Approach WB Left/Through WB Right Turn NB Approach SB Through/Right	0 Feet 35 Feet 35 Feet 120 Feet 25 Feet	35 Feet 120 Feet 15 Feet 120 Feet 390 Feet	15 Feet 65 Feet 10 Feet 30 Feet 355 Feet	50 Feet
New Park Avenue at West Hartford Place/Raymore & Flannigan Driveway	EB Left Turn EB Through EB Right Turn WB Approach NB Left Turn NB Through/Right SB Through SB Right Turn	100 Feet 50 Feet 30 Feet 0 Feet 30 Feet 695 Feet 95 Feet 35 Feet	185 Feet 175 Feet 50 Feet 50 Feet 100 Feet 580 Feet 440 Feet 190 Feet	215 Feet 220 Feet 50 Feet 50 Feet 305 Feet 615 Feet 340 Feet 215 Feet	190 Feet 190 Feet 190 Feet 300 Feet 250 Feet
New Park Avenue at Flatbush Avenue	EB Left Turn EB Through/Right WB Left Turn WB Through WB Right Turn NB Left Turn NB Through/Right SB Left Turn SB Left/Through	40 Feet 290 Feet 360 Feet 220 Feet 55 Feet 80 Feet 470 Feet 345 Feet 335 Feet	35 Feet 250 Feet 365 Feet 440 Feet 215 Feet 200 Feet 445 Feet 585 Feet 375 Feet	35 Feet 170 Feet 380 Feet 230 Feet 195 Feet 240 Feet 470 Feet 550 Feet 705 Feet	50 Feet 375 Feet 475 Feet 475 Feet 165 Feet 260 Feet
New Park Avenue at Prospect Avenue	EB Left Turn EB Right Turn WB Approach NB Approach SB Left/Through SB Right Turn	30 Feet 15 Feet 0 Feet 260 Feet 165 Feet 0 Feet	45 Feet 25 Feet 25 Feet 400 Feet 370 Feet 0 Feet	45 Feet 25 Feet 0 Feet 320 Feet 320 Feet 0 Feet	50 Feet

Table 5
Alternatives 3 & 4 Queue Length Summary
New Park Avenue
West Hartford, Connecticut

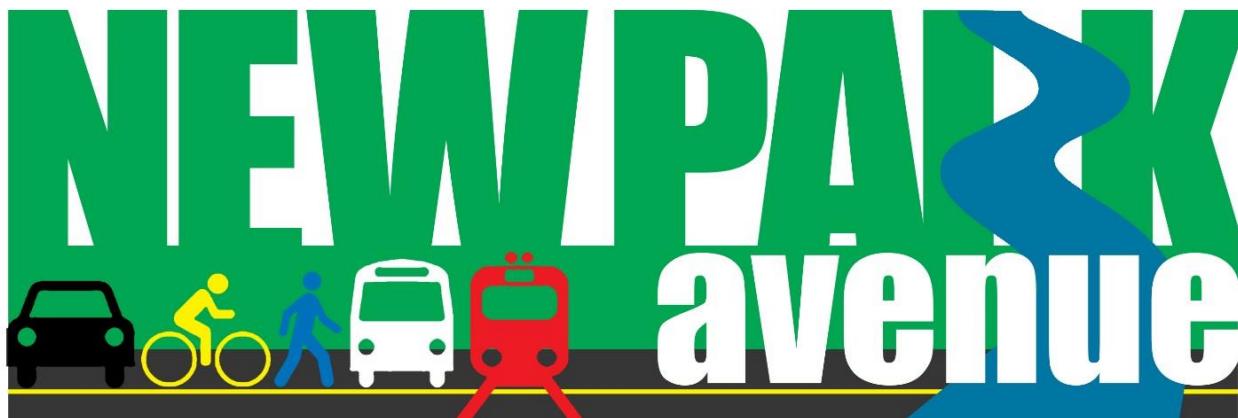
Intersection	Approach Lane	Morning Peak Hour	Afternoon Peak Hour	Saturday Peak Hour	Storage Length
New Park Avenue at New Britain Avenue/Railroad Place	EB Left Turn EB Through WB Through WB Right Turn NB Approach SB Through/Right	1145 Feet 415 Feet 570 Feet 305 Feet 25 Feet 60 Feet	660 Feet 495 Feet 915 Feet 155 Feet 40 Feet 235 Feet	440 Feet 310 Feet 690 Feet 320 Feet 0 Feet 175 Feet	300 Feet 450 Feet 450 Feet
New Park Avenue at Talcott Road	EB Left Turn EB Right Turn NB Approach SB Through SB Right Turn	185 Feet 25 Feet 125 Feet 200 Feet 25 Feet	185 Feet 35 Feet 110 Feet 830 Feet 55 Feet	220 Feet 35 Feet 85 Feet 560 Feet 30 Feet	300 Feet
New Park Avenue at Oakwood Avenue/Colt Driveway	EB Approach WB Left/Through WB Right Turn NB Approach SB Left Turn SB Through/Right	0 Feet 20 Feet 15 Feet 190 Feet 15 Feet 75 Feet	20 Feet 75 Feet 15 Feet 200 Feet 50 Feet 250 Feet	10 Feet 35 Feet 15 Feet 170 Feet 50 Feet 170 Feet	50 Feet 175 Feet
New Park Avenue at West Hartford Place/Raymore & Flannigan Driveway	EB Left Turn EB Through EB Right Turn WB Approach NB Left Turn NB Through/Right SB Through SB Right Turn	65 Feet 30 Feet 25 Feet 0 Feet 35 Feet 120 Feet 225 Feet 25 Feet	205 Feet 200 Feet 55 Feet 40 Feet 155 Feet 105 Feet 865 Feet 90 Feet	285 Feet 290 Feet 70 Feet 55 Feet 375 Feet 130 Feet 640 Feet 40 Feet	190 Feet 190 Feet 190 Feet 300 Feet 250 Feet
New Park Avenue at Flatbush Avenue	EB Left Turn EB Through/Right WB Left Turn WB Through WB Right Turn NB Left Turn NB Through/Right SB Left Turn SB Left/Through	45 Feet 355 Feet 425 Feet 255 Feet 60 Feet 130 Feet 560 Feet 435 Feet 190 Feet	35 Feet 230 Feet 345 Feet 405 Feet 140 Feet 210 Feet 290 Feet 560 Feet 385 Feet	35 Feet 125 Feet 420 Feet 210 Feet 115 Feet 120 Feet 250 Feet 470 Feet 245 Feet	50 Feet 375 Feet 475 Feet 475 Feet 165 Feet 260 Feet
New Park Avenue at Prospect Avenue	EB Left Turn EB Right turn WB Approach NB Left Turn NB Through/Right SB Left/Through SB Right Turn	15 Feet 20 Feet 0 Feet 320 Feet 190 Feet 75 Feet 0 Feet	25 Feet 35 Feet 15 Feet 560 Feet 245 Feet 160 Feet 0 Feet	25 Feet 35 Feet 0 Feet 440 Feet 225 Feet 135 Feet 0 Feet	50 Feet

Appendix C

Meeting Materials

**SAVE THE
DATE!**

*Thursday, June 9th
at 3:30 and 6:30pm!*



TRANSIT AREA · COMPLETE STREETS STUDY

You're Invited to Workshop #2!

Please join us at either 3:30 p.m. or 6:30 p.m. to hear about the progress we have made in evaluating potential complete street improvements and possible amendments to the zoning ordinances along the New Park Avenue Corridor. We will also continue the discussion about enhancing pedestrian and bicycle connectivity and building a more vibrant neighborhood. We hope you can attend and provide your input!

**Elmwood Community Center
Room 110
1106 New Britain Ave, West
Hartford, CT 06110**



For more information please visit:

www.westhartfordct.gov/gov/departments/pz

or

www.facebook.com/newparkavenue

Questions? Contact Todd Dumais, Town Planner
todd.dumais@westhartfordct.gov

NEWPARK avenue



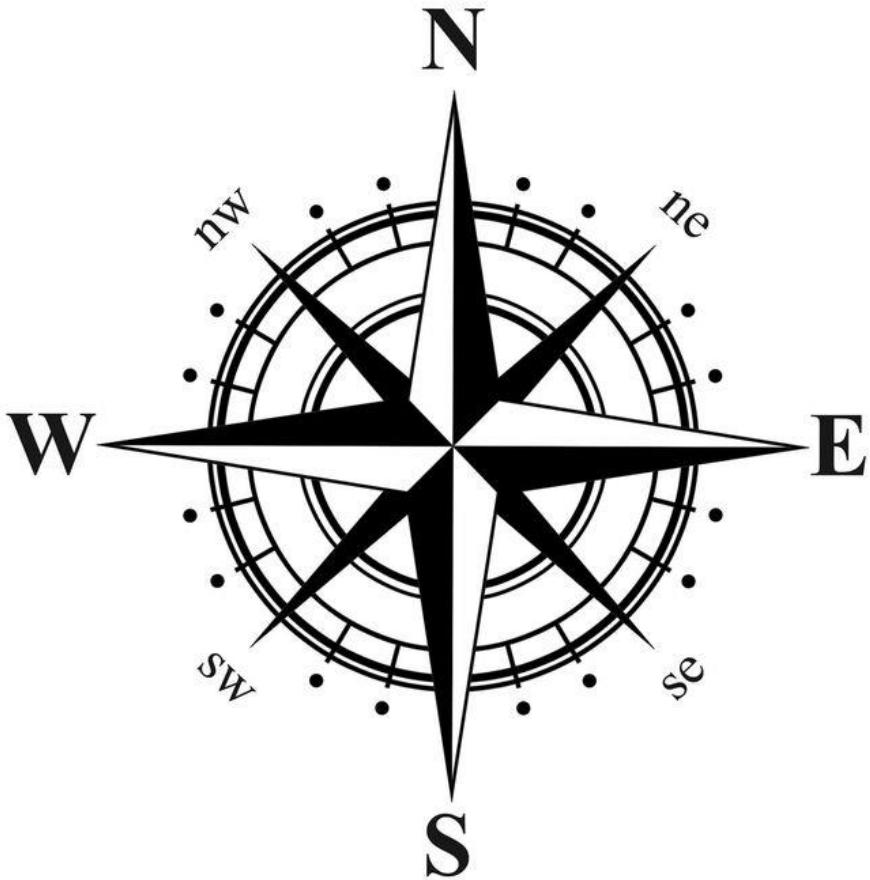
TRANSIT AREA · COMPLETE STREETS STUDY

Workshop Two

June 9, 2016

Presentation Outline

- Introduction
- Public Involvement
- Alternative Descriptions
- Traffic Analysis
- Landscape Design
- Zoning Analysis
- Review of Alternatives



Project Corridor



Fundamental Challenge

- Street vs. Road
- New Park Avenue is now a multi-modal “Gateway” to West Hartford
- Accessibility for modes of transportation other than cars
- Improve connectivity and safety of pedestrians and bicyclists
- Integrate land use strategies and adhere to zoning regulations



Public Outreach

- Pop-Up Kiosk
- Flyers
- Project Website

The screenshot shows a Facebook page for the 'New Park Avenue Transit Area Complete Streets Project'. The cover photo is an aerial view of a town with roads and buildings. The page title is 'New Park Avenue Transit Area Complete Streets Project' and the handle is '@newparkavenue'. The page has 15 likes and 0 posts this week, and 134 post reach this week. It features a post from Katherine Pariseau and Jon Allard about the project, which includes a survey link. The page also has sections for 'Community', 'About', and a 'SurveyMonkey' link.



Workshop One Review

- April 20th
- Elmwood Community Center
- 50 Attendees
- Afternoon and Evening Sessions
- Three character sections



Workshop One Review

FLATBUSH

- CONGESTION @ FLATBUSH INT.
- 40 min to get out of Foley
- Worse off the wknds
- Keeping 4 lanes may be preferable
- Add'l ped train tracks crossing
- Hidden gem between Jefferson + Darcy
- Community plaza on State owned land on NW corner
- Retail/residential
- Wider sidewalks - too close to road
- Beacons create mixed expectations

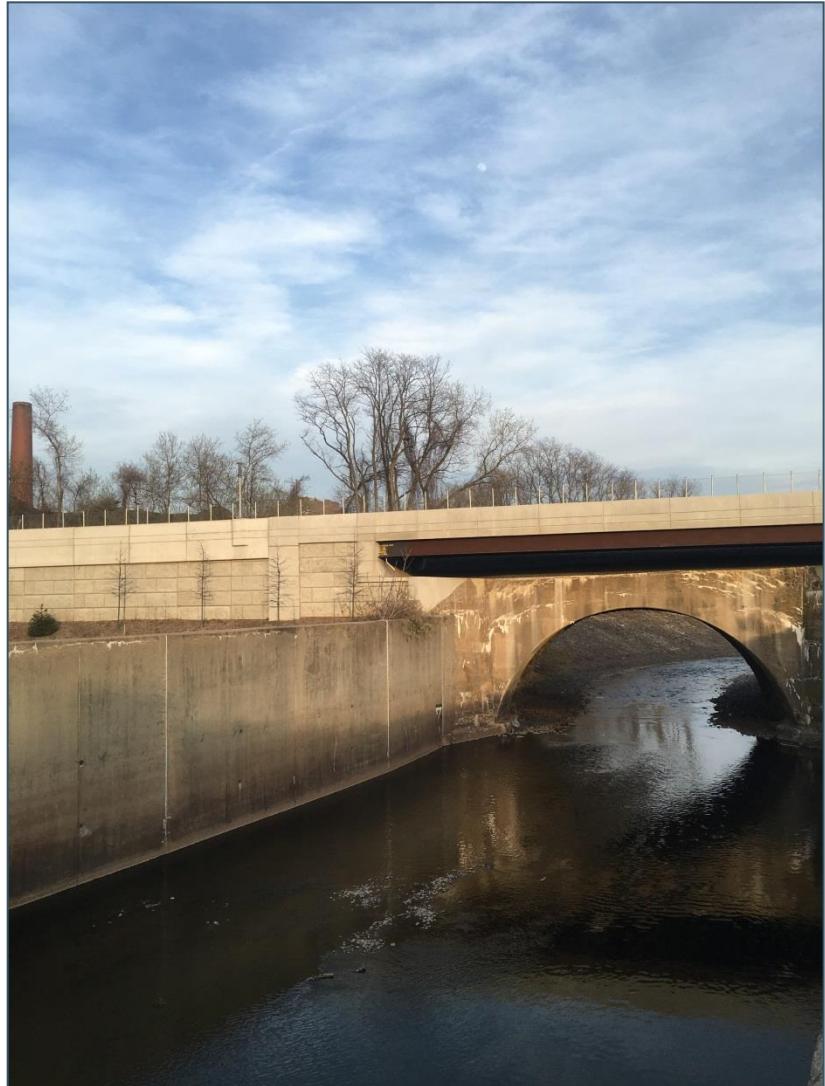
Flatbush

- Congestion @ Flatbush intersection in both directions
- Check light coordination
- questions on whether bike lanes would be used
- no safe crossing points outside of int's
- wider sidewalks
- more parking req'd @ Fastrak
- Police substation @ NewPark/Flatbush int
- Infrequent use of Fastrak by bicyclists
- mixed use/residential development styles
- long wait for ped crossing
- demand for ped's to access businesses

Workshop One Review

What We Heard - Elmwood

- Extension of Elmwood neighborhood
- Bicycle lanes vs on-street parking
- Trout Brook Trail not publicized
- Speeds too high – needs traffic calming
- Industrial driveway potential for cut through to relieve New Britain Avenue congestion



Workshop One Review

What We Heard – West Hartford Place

- Aesthetically unpleasing
- Handicap accessibility
- Use excess Colt parking for green space
- Not safe for bikes
- We like the trees!
- Jefferson/Darcy area looks better



Workshop One Review

What We Heard – Flatbush

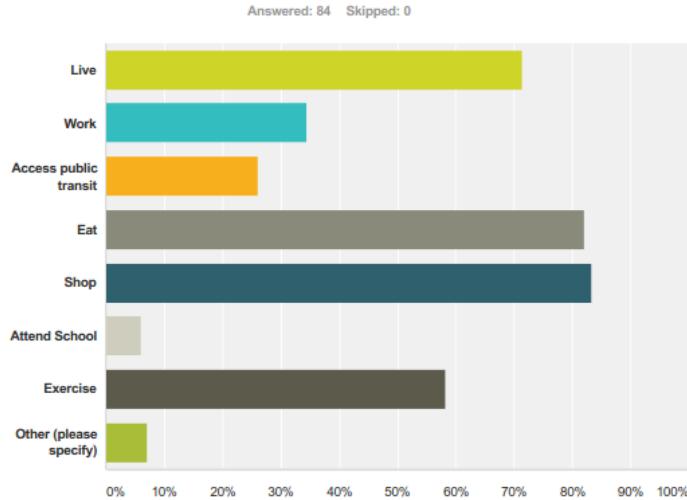
- Traffic congestion
- Long wait for pedestrian crossing
- More parking required at CTFastrak stations
- Congestion is worse on the weekends
- Wider sidewalks would be preferable



Survey

- Survey conducted online
- 84 Respondents
- 12 Questions
- Augments public input received at Workshops

**Q1 What do you do in West Hartford?
Please select all that apply.**

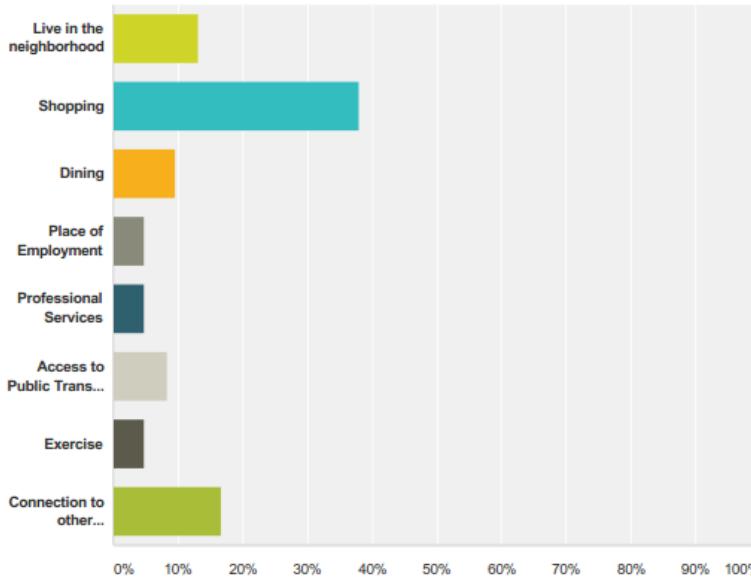


Answer Choices	Responses
Live	71.43% 60
Work	34.52% 29
Access public transit	26.19% 22
Eat	82.14% 69
Shop	83.33% 70
Attend School	5.95% 5
Exercise	58.33% 49
Other (please specify)	7.14% 6
Total Respondents: 84	

Survey

Q3 Why do you most often use the New Park Avenue Area?

Answered: 84 Skipped: 0

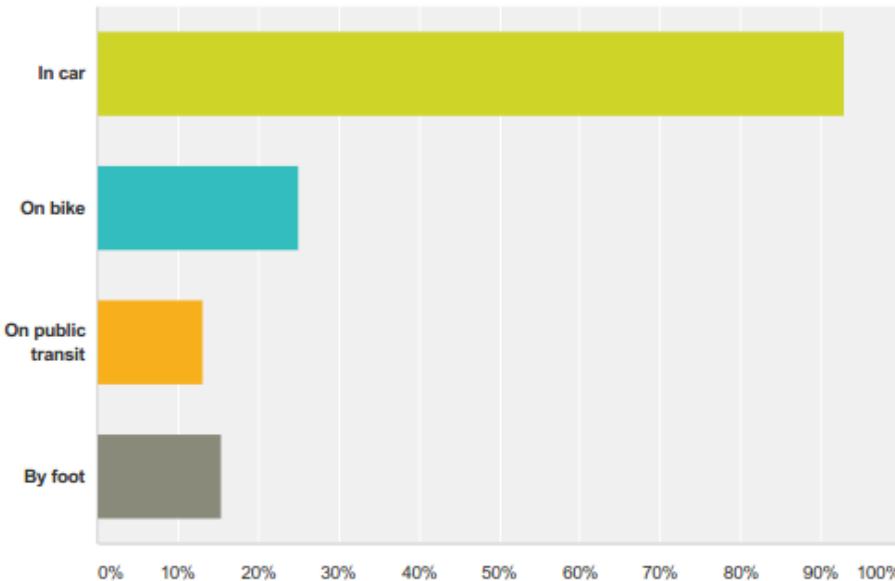


Answer Choices	Responses
Live in the neighborhood	13.10% 11
Shopping	38.10% 32
Dining	9.52% 8
Place of Employment	4.76% 4
Professional Services	4.76% 4
Access to Public Transit (CTFastrak)	8.33% 7
Exercise	4.76% 4
Connection to other destinations	16.67% 14
Total	84

Survey

Q4 How do you travel on New Park Avenue? Please check all that apply.

Answered: 84 Skipped: 0

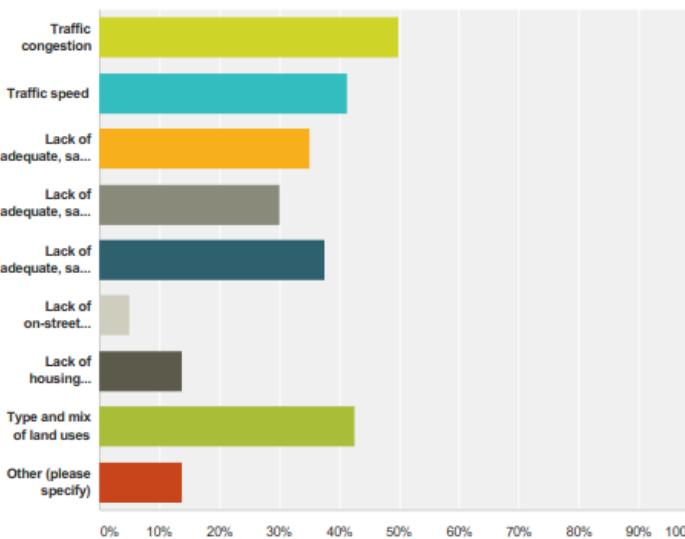


Answer Choices	Responses
In car	92.86%
On bike	25.00%
On public transit	13.10%
By foot	15.48%
Total Respondents: 84	

Survey

Q7 What are the biggest challenges facing the New Park Avenue Area? Please select up to three.

Answered: 80 Skipped: 4



Answer Choices	Responses
Traffic congestion	50.00% 40
Traffic speed	41.25% 33
Lack of adequate, safe or comfortable sidewalks	35.00% 28
Lack of adequate, safe or comfortable crosswalks	30.00% 24
Lack of adequate, safe, or comfortable bicycle amenities	37.50% 30
Lack of on-street parking	5.00% 4
Lack of housing opportunities	13.75% 11
Type and mix of land uses	42.50% 34
Other (please specify)	13.75% 11
Total Respondents: 80	

Goals for Alternatives



- Create balanced traffic flow
- Better bicycle and pedestrian accommodations
- Controlled access management
- Better use of curb to curb space
- Promote Trout Brook Trail
- Incorporate works of art
- Consistent and appealing landscapes
- Promote feeling of user safety

Four Roadway Use Alternatives

Alternative 1

Coordinated Signal System

Alternative 2

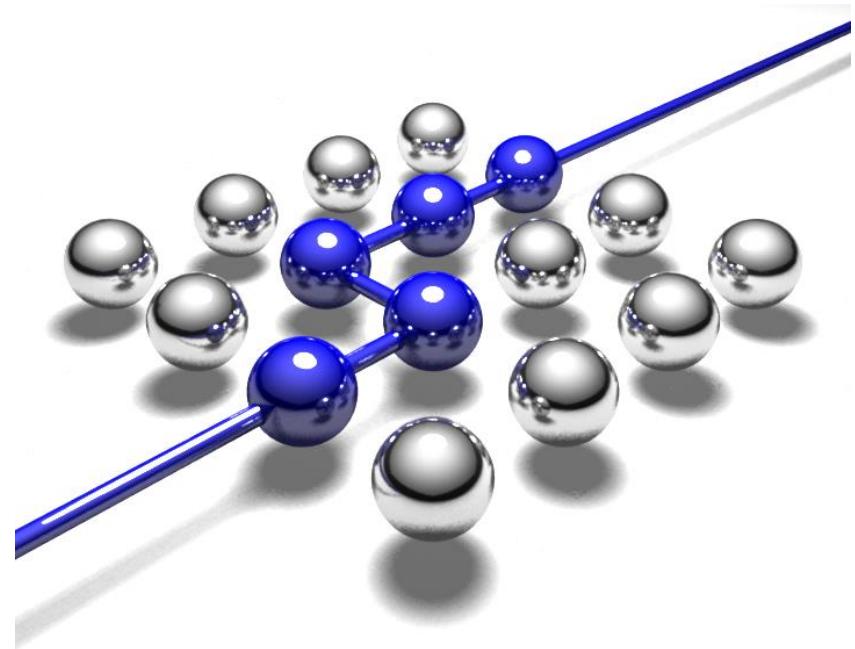
Two-way Cycle Track

Alternative 3

Buffered Bike Lanes

Alternative 4

Boulevard Concept



Alternative 1

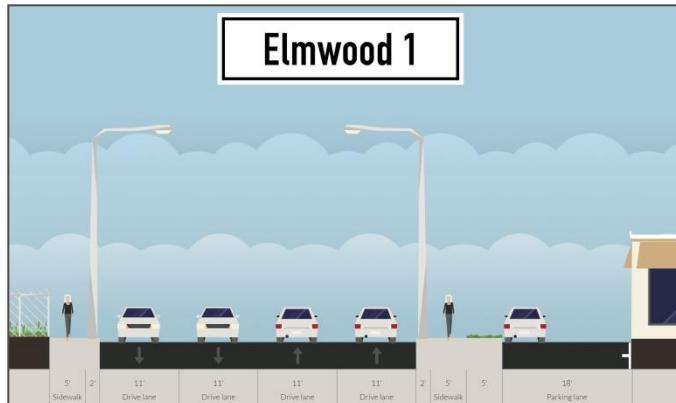
- Coordinate signals
- New Britain Avenue is coordinated on its own signal system
- Add exclusive pedestrian phase to Talcott & Oakwood signals

Benefits

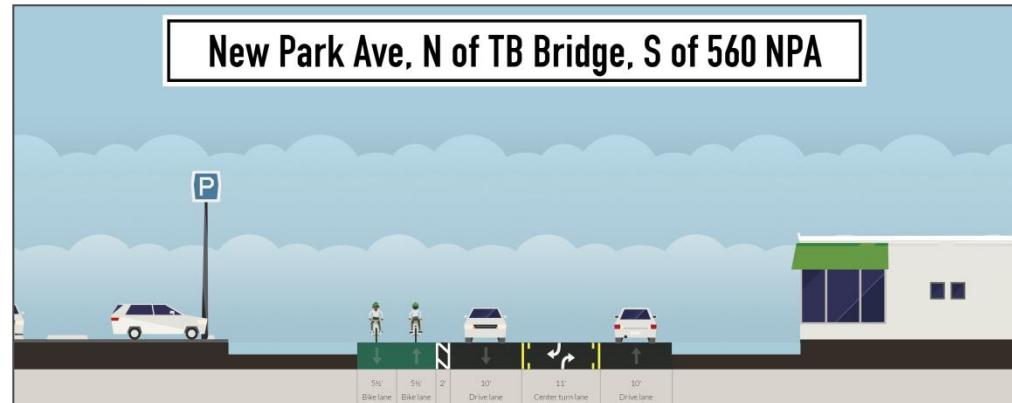
- Expect to see *increased efficiency* of traffic flow through intersections
- Coordinating the signals allows for vehicles to catch a *green wave* instead of each node operating independently
- Creates *smaller queues* and *decreases delay* times at intersections

Alternative 2

- Construction of a two-way left turn lane (TWLTL)
 - *Helps to prevent congestion in travel lanes*
- On street parking in Elmwood section
- Dedicated cycle track on west side of road
- Pocket parks at Trout Brook Trail and West Hartford Place



Existing Cross-Section View

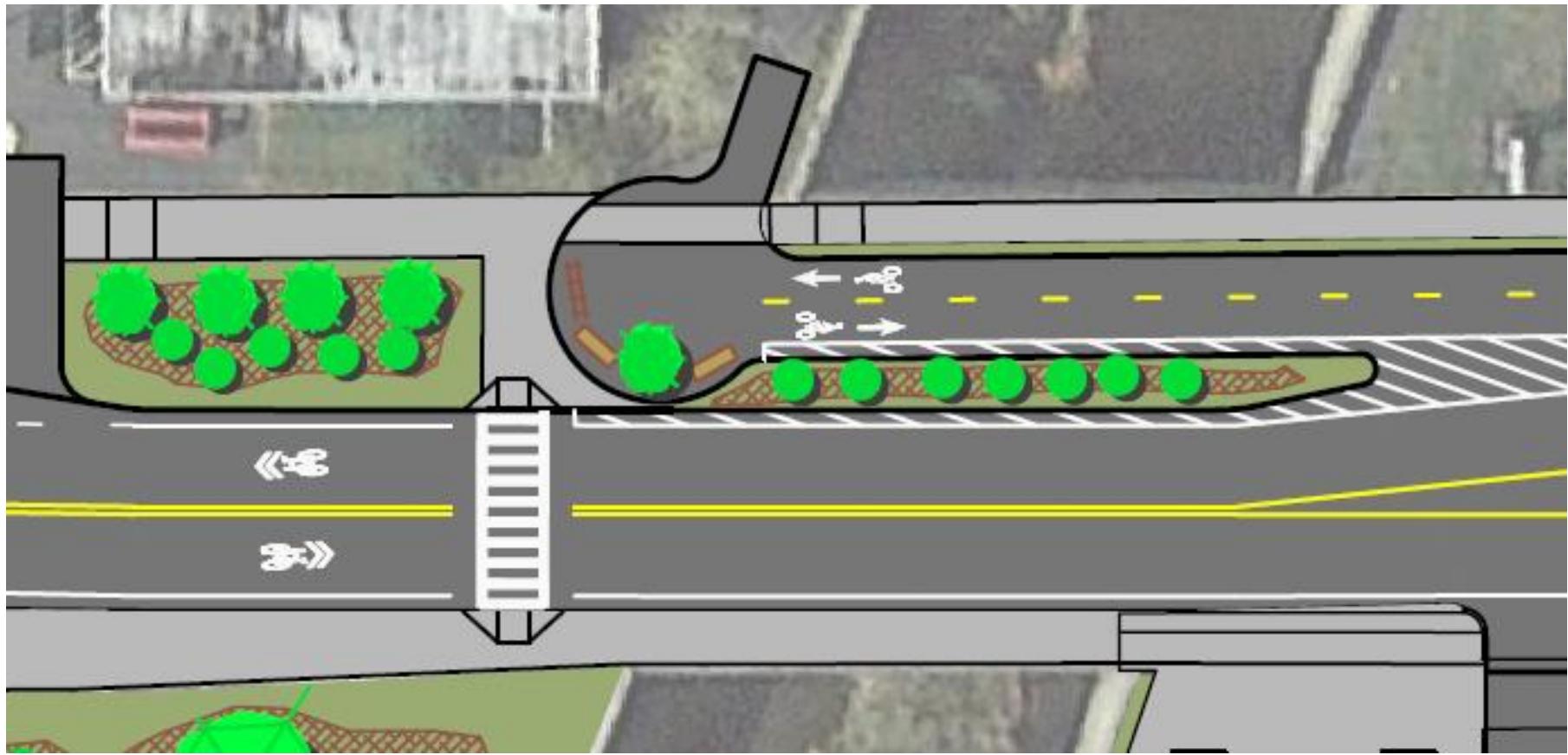


Proposed Cross-Section View

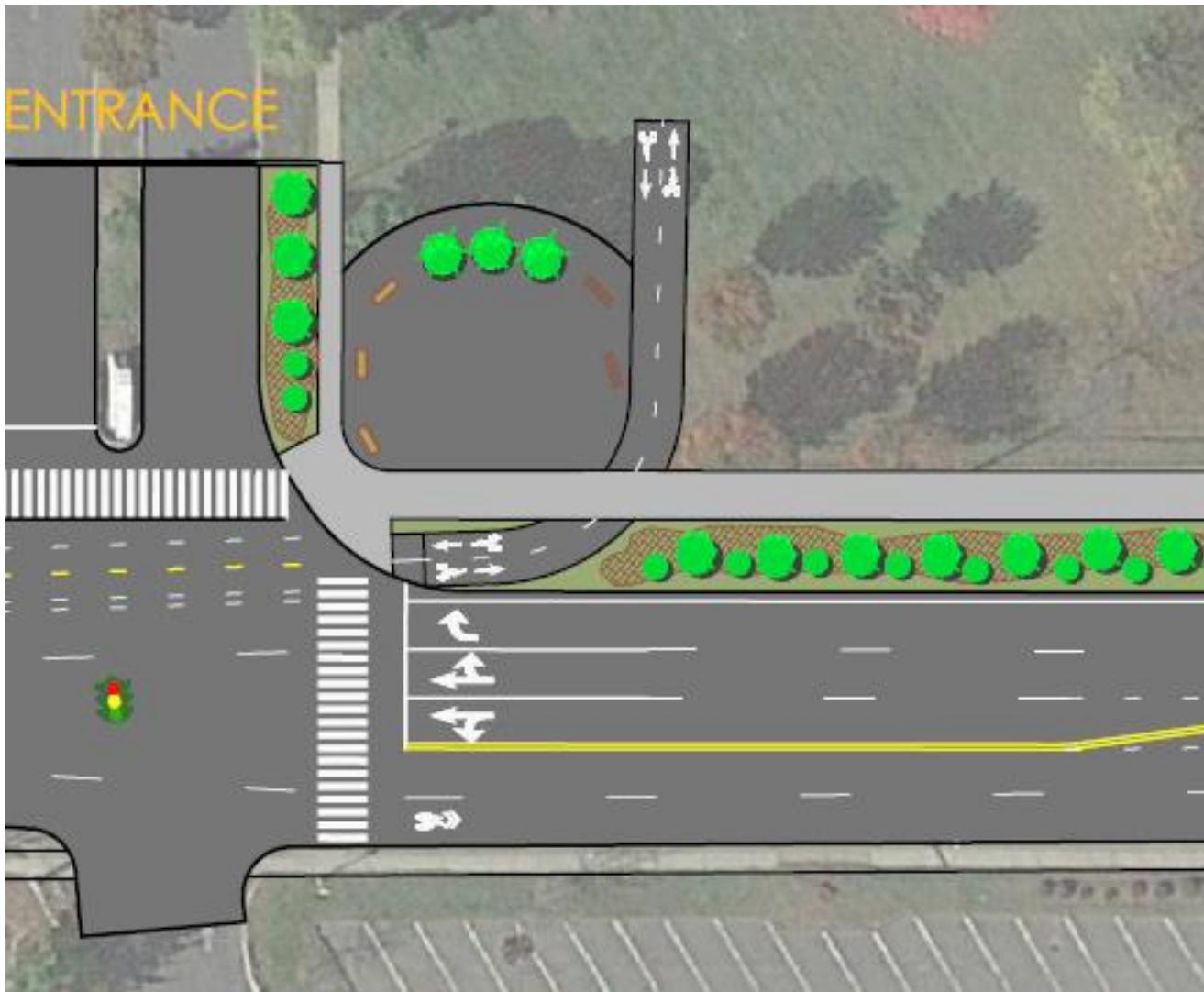
Alternative 2



Alternative 2

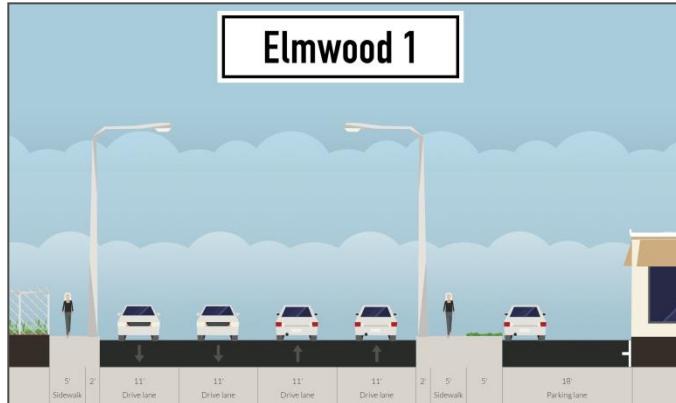


Alternative 2



Alternative 3

- Keep two-way left turn lane (TWLTL) from Alternative 2
- Construct buffered bike lanes on both sides of road way
- Bike lanes extend south to New Britain Avenue
- Smaller pocket park at Trout Brook Trail
- Wide sidewalk in Flatbush section to allow for bicyclists

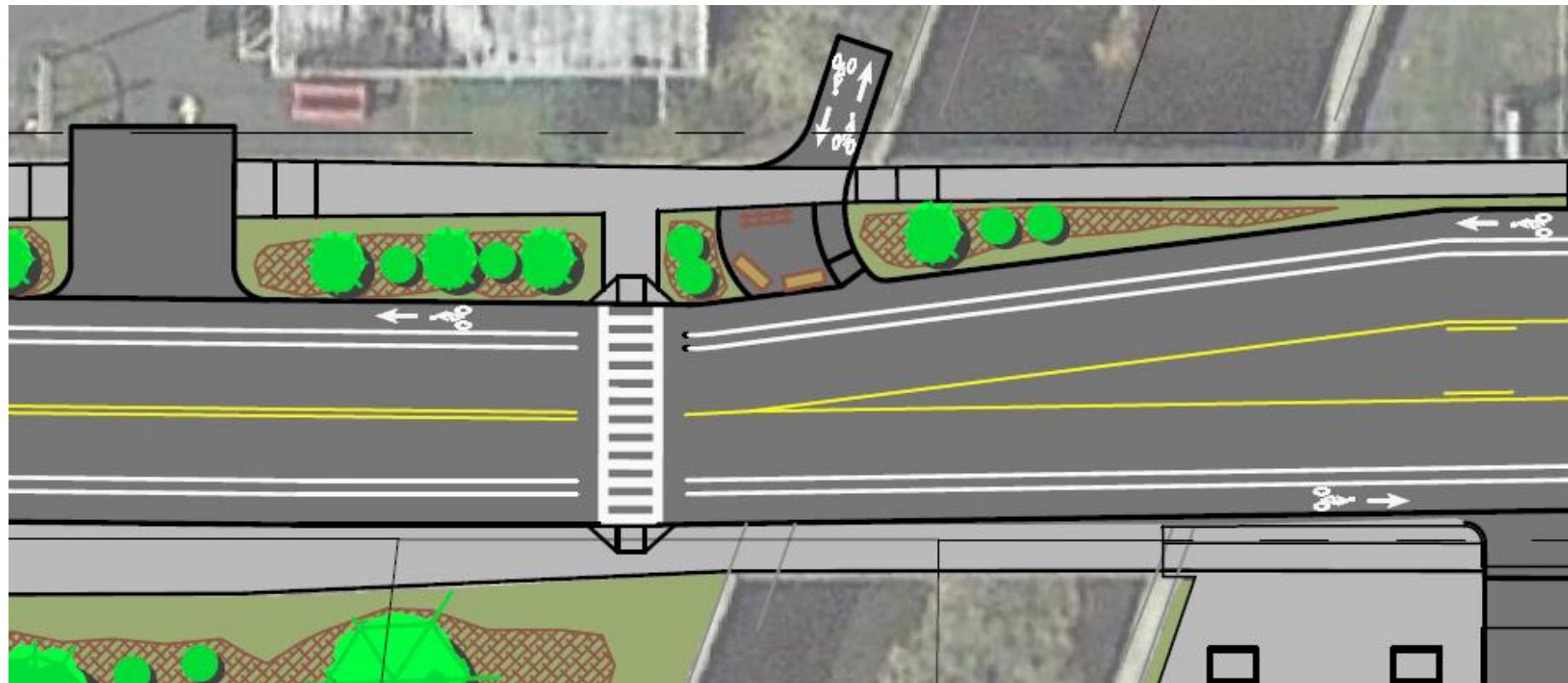


Existing Cross-Section View



Proposed Cross-Section View

Alternative 3

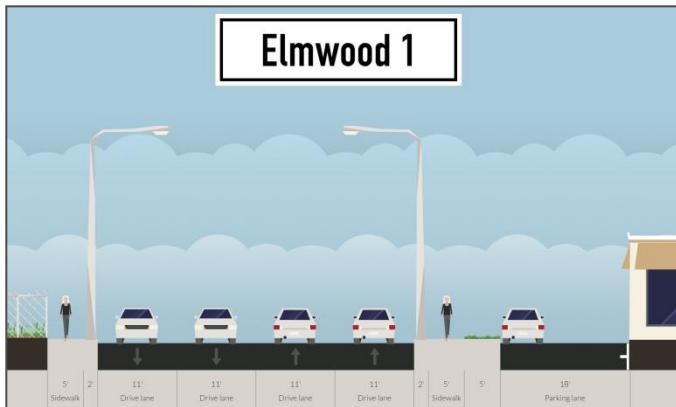


Alternative 3



Alternative 4

- Includes a raised median or textured center median with TWLTL where applicable
- Shown with separate bike lanes; could also function with two way cycle track
- Provides additional traffic calming



Existing Cross-Section View



Proposed Cross-Section View

Alternative 4



New Britain Avenue

- Reduction to one northbound receiving lane causes no additional delay – allows for bike lanes or on-street parking
- Already coordinated with other New Britain Avenue signals
- Experiences delays and queues with 2030 traffic volumes



Talcott Road

- Pinch point south of Talcott Road – Alternatives include one southbound receiving lane to accommodate cycle track or bike lanes
- 2030 operations experience only minor increase in delay from present



Colt Driveway/Oakwood Avenue



- Change to shared through/left turn lane on southbound approach
- After coordinating the corridor, increased capacity
 - More even flow and overall decrease in delays

West Hartford Place

- Reduction to three lanes traveling southbound, does not increase queues
- Incorporates cycle track to the south and bike lanes to the north



Flatbush Avenue



- Experiences delays and extended queues with 2030 traffic volumes
- No changes to current lane arrangements in order to maintain efficiency

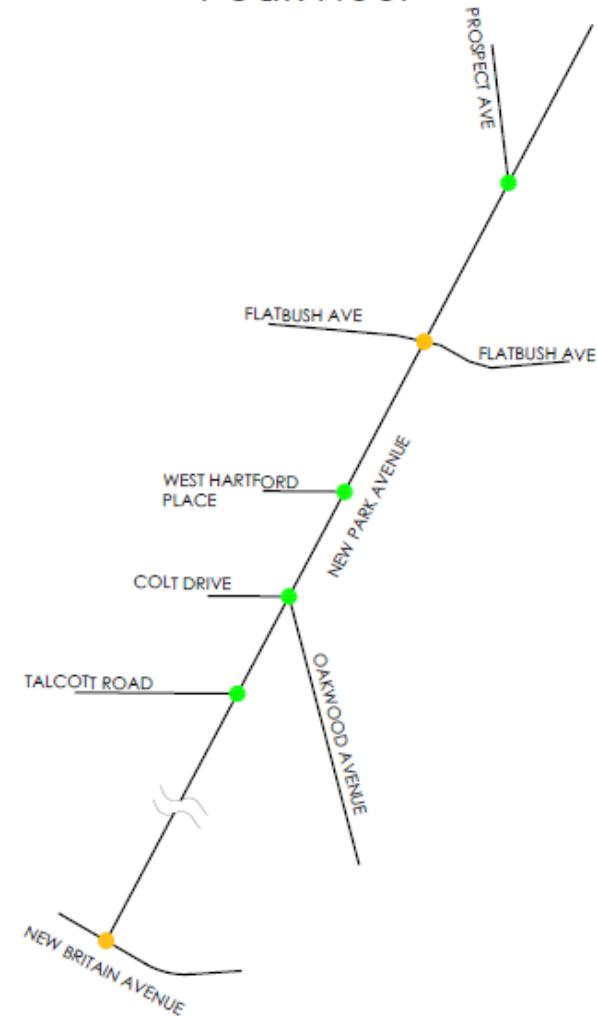
Prospect Avenue

- 2030 operations remain consistent when compared to current conditions
- Lane reduction possible without increasing delays but not currently displayed in alternatives

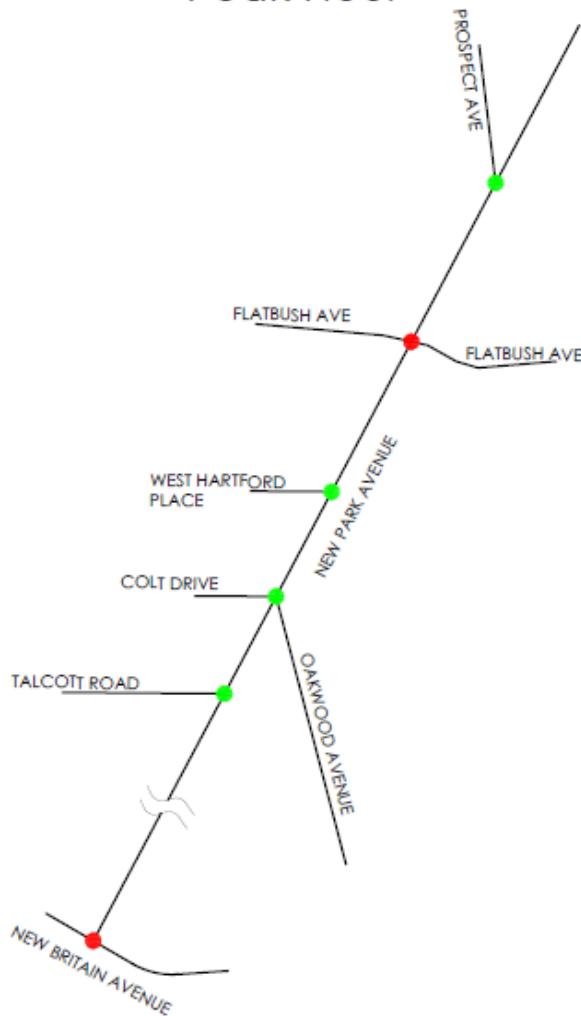


Overview – Morning Peak Hour

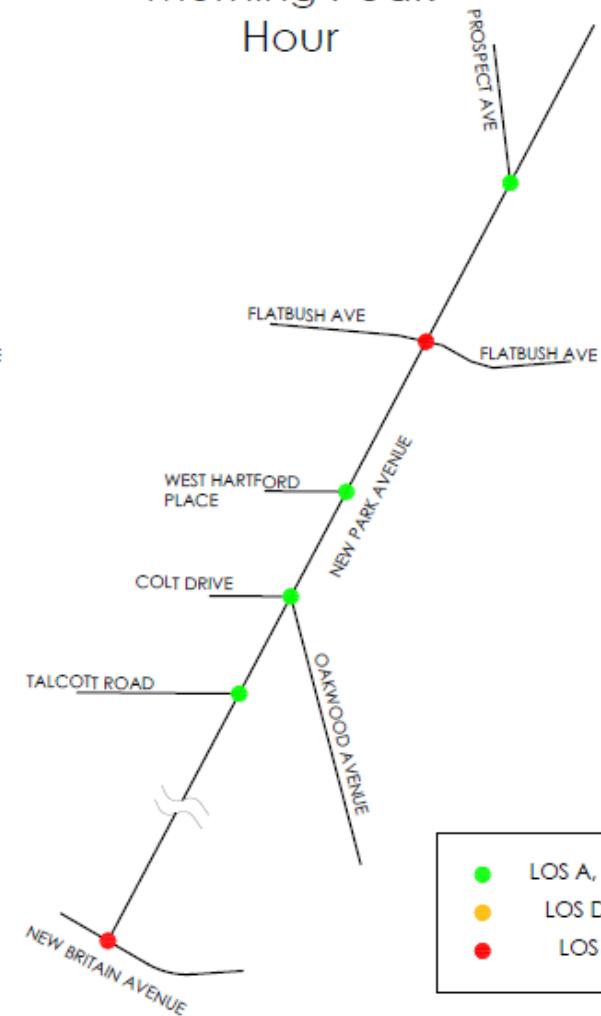
Existing Morning Peak Hour



2030 Morning Peak Hour



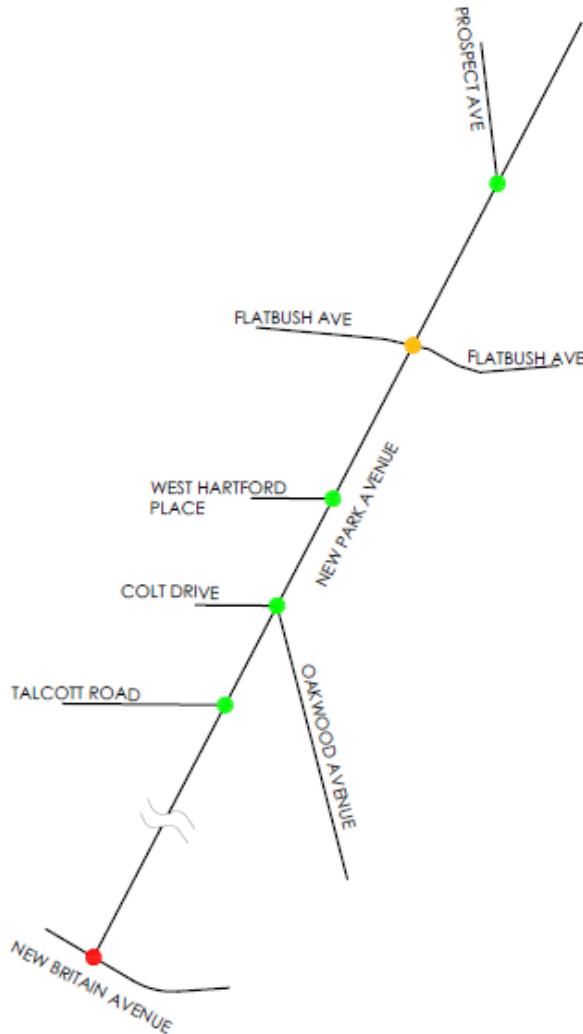
Modified 2030 Morning Peak Hour



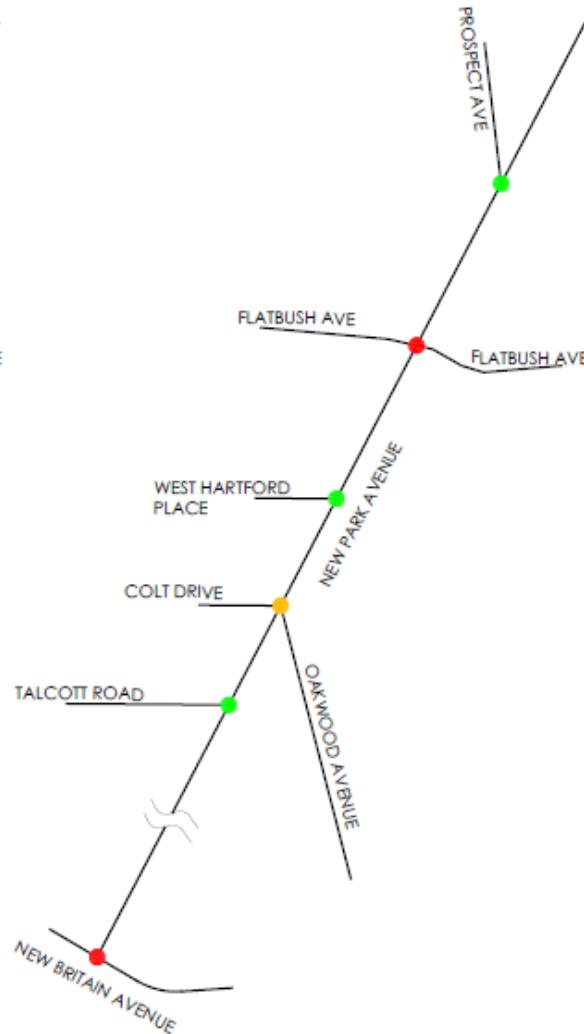
- LOS A, B, C
- LOS D, E
- LOS F

Overview – Afternoon Peak Hour

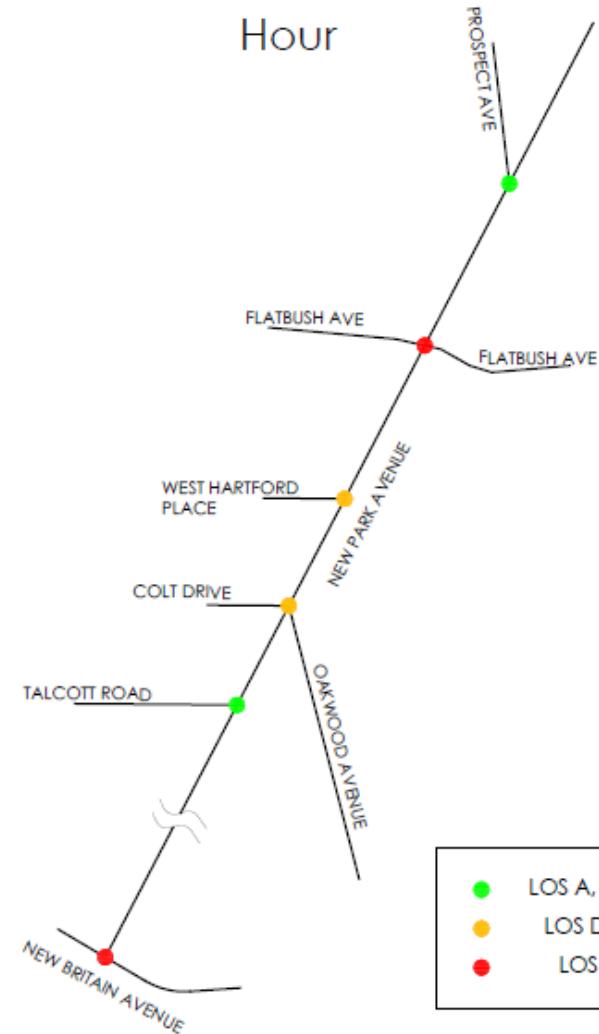
Existing Afternoon Peak Hour



2030 Afternoon Peak Hour



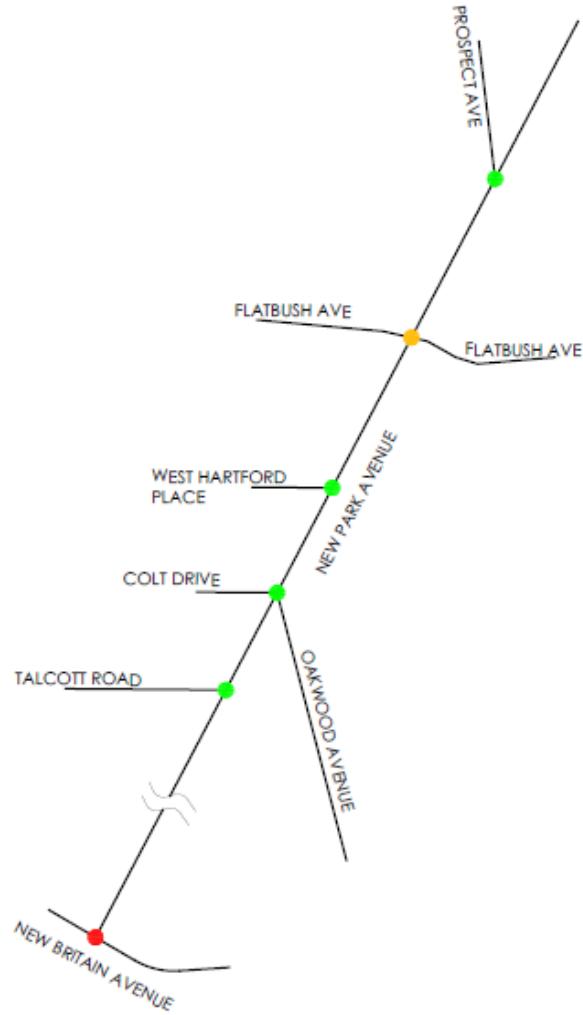
Modified 2030 Afternoon Peak Hour



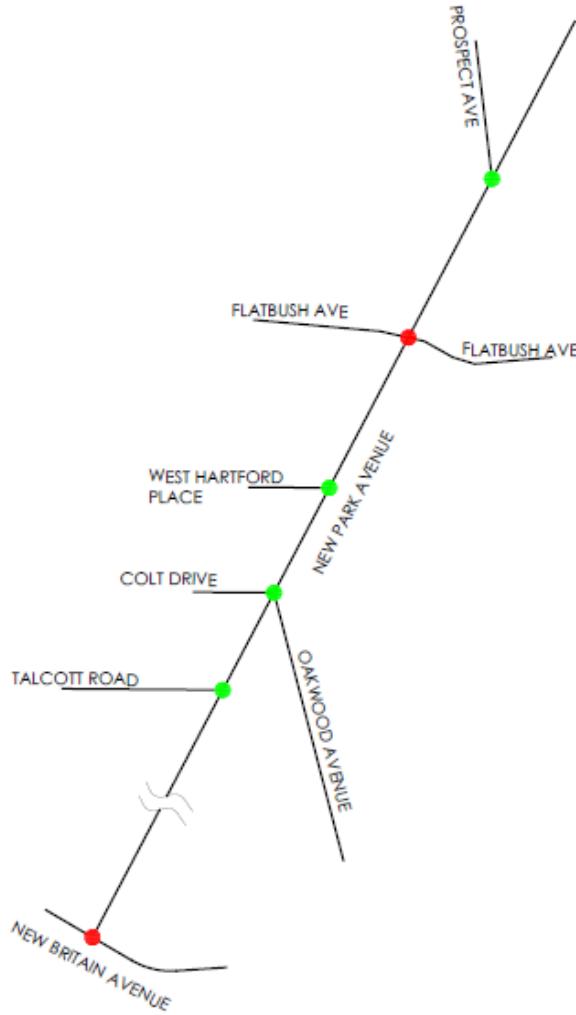
- LOS A, B, C
- LOS D, E
- LOS F

Overview – Saturday Peak Hour

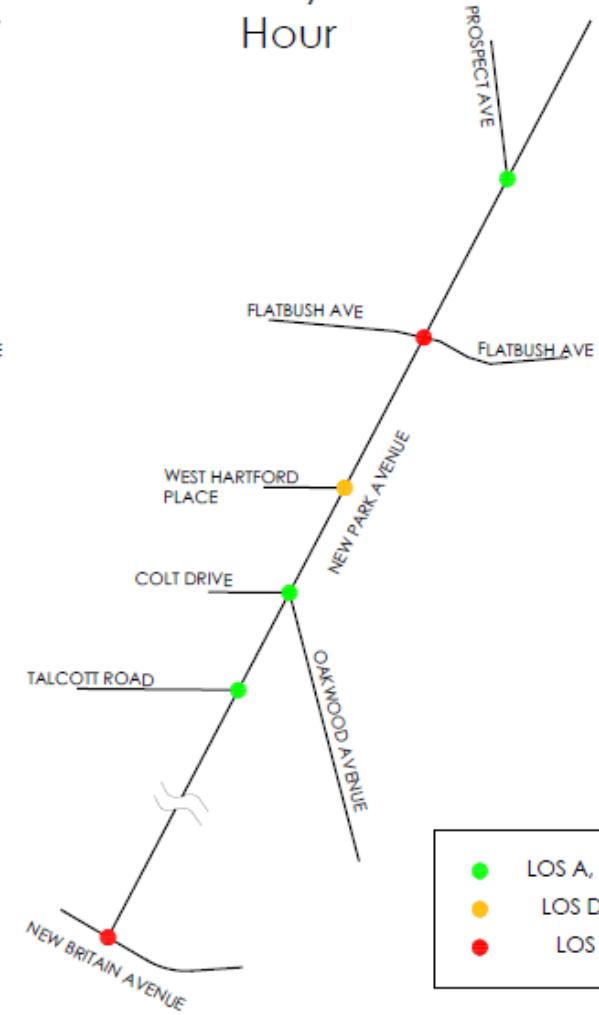
Existing Saturday
Peak Hour



2030 Saturday
Peak Hour



Modified 2030
Saturday Peak
Hour

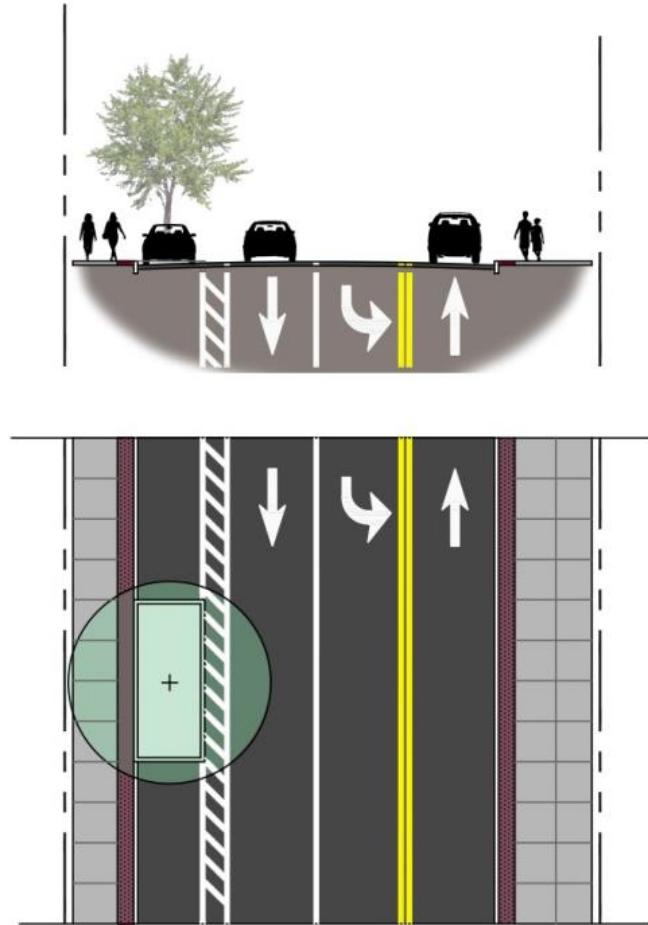


- LOS A, B, C
- LOS D, E
- LOS F

Landscape Design

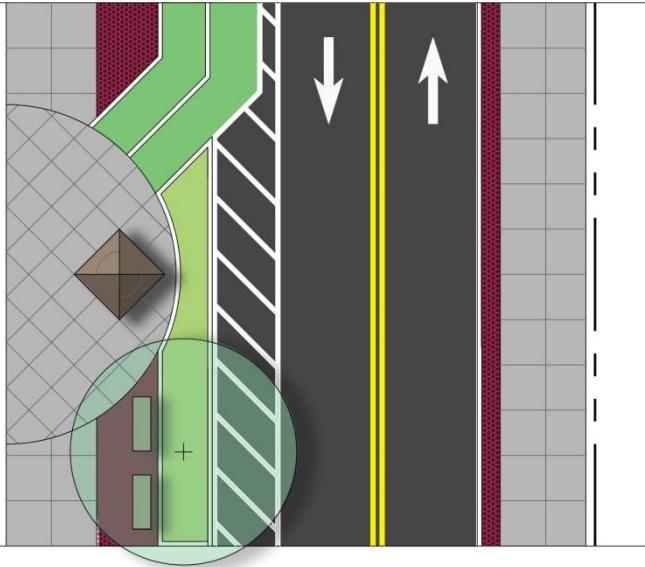
- Corridor separated into twelve areas
- Two additional focus areas at Trout Brook and WH Place
- Used proposed roadway sections to develop planting strategies
- Incorporated roadside furniture
- Investigated green infrastructure options
- Defined corridor visually using vertical elements

Landscape Design



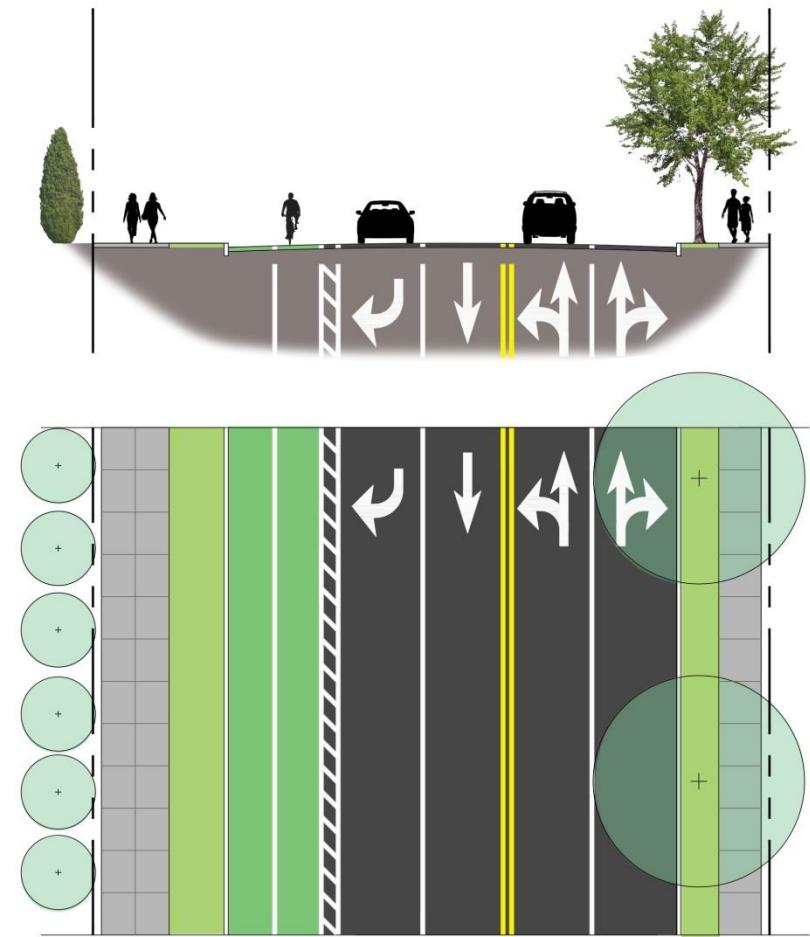
Elmwood Area 1

Landscape Design



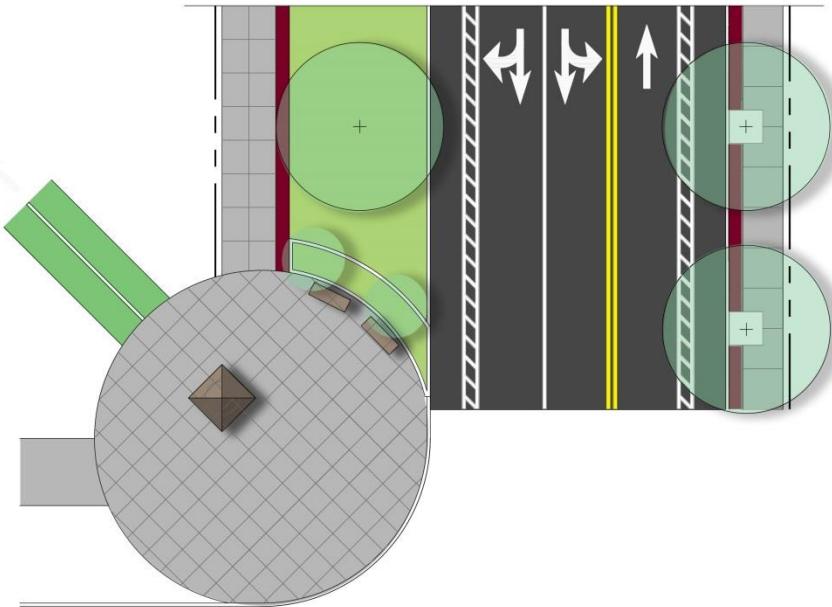
Trout Brook Trail

Landscape Design



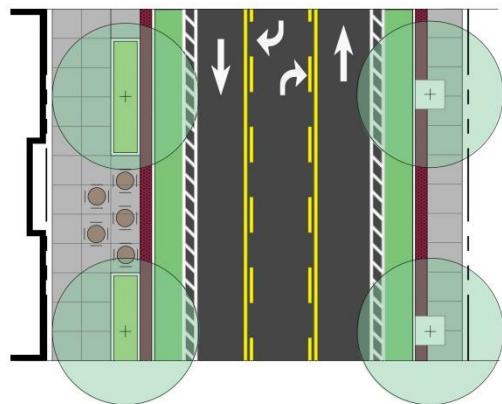
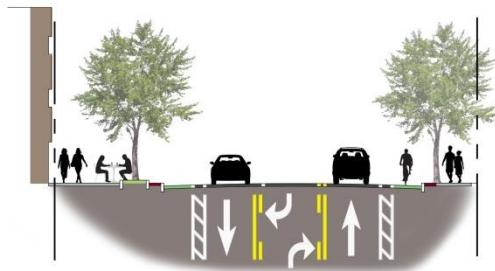
Colt Area 5

Landscape Design



West Hartford Place

Landscape Design



Darcy/Jefferson Area 8

Landscape Design



Boulevard Concept

Land Use, Zoning & The New Park Corridor



POCD Vision

Market Demand = Zoning

Physical Capacity

- Promote market based TOD
- Preserve/Enhance commercial industrial uses
- Provide flexibility for mixed use in industrial uses

New Park Avenue Implications

- Two to three corridor streetscape/landscape treatments
- TOD areas (building wall)
- Non TOD areas (landscape “wall”)

TOD Opportunities



Elmwood

- Extension of The Center
- Existing building stock
- Parcel consolidation

TOD Characteristics

- Mix of uses
- Higher density
- High quality pedestrian environment
- Sense of place
- Flexible parking requirements
- demographics

New Park Avenue Implications

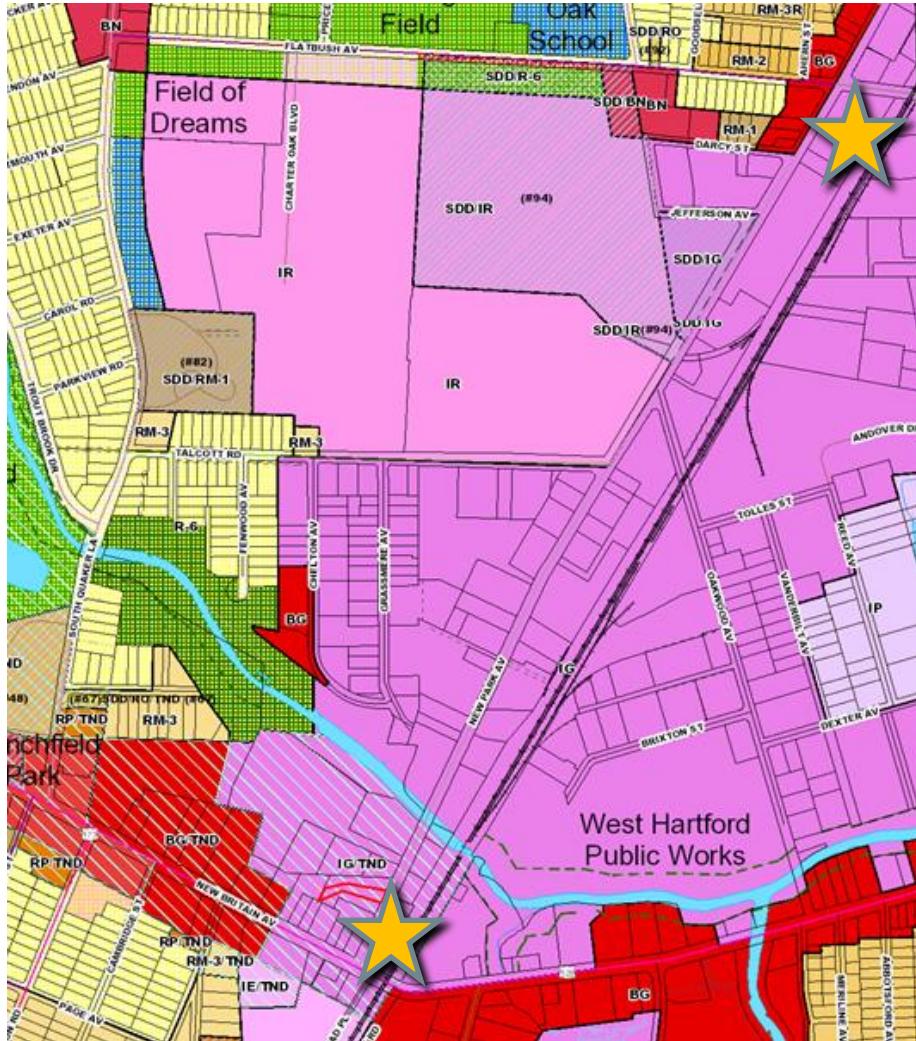
- Build to lines
- Wide sidewalks
- On-street parking
- Furniture zones
- Pedestrian activity



Flatbush

- Bus and Rail
- Establish residential neighborhoods
- Previous studies

Zoning Regulates Implementation



- General Industrial District
- Restricted Industrial District
- Traditional Neighborhood Design District (TNDD)
- General Business District
- Multifamily Residencies (minor)
- Residence Office District (minor)
- Special Development District (SDD)

Zoning Regulates Implementation

Issues: Clarity, Flexibility, Ease of Permitting

- General Industrial District and Restricted Industrial District
- Underlying zone requirements do not support mixed use development patterns
- Traditional Neighborhood Design District
 - Must be used if property value increased by 50%
 - Use, density and bulk per underlying zone??
 - Parking only in rear of buildings
 - No single building site greater than 4 acres
 - Maximum building: 40,000sf
 - Prohibitive building material requirements

Zoning Options

Tweak existing regulations

- Possible removal of TNDD in certain areas
- Adjustments to IG and IR districts
 - Parking, landscaping, coverage, density and use flexibility
 - Strengthen mixed use opportunities and adjust underlying zone requirements as necessary
 - Potential design guidelines to support desired development pattern

Zoning Options

Modifications to SDD

- Ease permitting process
- Expand bulk and other requirements beyond underlying zone
- Develop design guidelines specific to areas as permit reference if needed

Develop new overlay for corridor

- Incorporate differences between nodes and middle
- Develop supportive design guidelines and requirements

Discussion



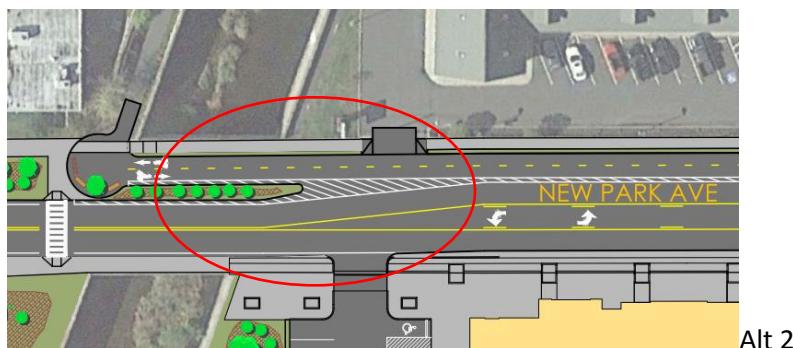
3:30pm

- I-84 being rerouted, will that bring more cars down New Park Avenue? Are we planning for that?
- Zoning
 - NIMBY
 - Store front could be on New Park Avenue, but tractor trailers/maintenance vehicles utilize the rear entrances and that impacts neighborhoods
 - Is it possible to incorporate zoning to avoid this when planning future developments?
 - High level of concern: town/big box companies may try to buy residential homes and “force” residents out in order to expand
 - Jeff Gebrian and Chris Ferrero – aesthetics vs function, don’t “zone out” the big box/colt type businesses because they pay the taxes and are essential to a successful town
 - Open to changing regulations/creating an overlay
- West Hartford Advisory Committee – Ed
 - Concerns with sharrows – exactly brought up our talking point of speeds and sharrows
 - Explained that this is simply an option; a good design will decrease the speed of traveling vehicles without altering the posted speed limit
 - Two-way separated bike lanes – short duration; expand right of way to expand cycle track into Hartford?
- Concern that integrating cyclists and vehicles will result in drastically more [dangerous] accidents

6:30pm

- Colt’s barbed wire fence is owned by Colt, not town of WH
 - A seemingly knowledgeable participant says fencing is required but barbed wire is not
 - Due to the nature of Colt’s work the property is required to be secure; if the size of their parking lot was decreased then it would be a smaller area to secure, therefore being more manageable
 - BENEFIT TO PROPERTY/BUSINESS OWNER
- Incorporate/take inspiration from Park Road and LaSalle Road
- Clarified that the bike facilities/striping are painted onto the pavement, not built up or painted green
- Who’s funding this project?
 - Right now a town planning grant; the final product of this study will hopefully be usable for a LOTCIP grant application to make the project happen
 - Due to the nature of the project there will likely be many funding opportunities to pool from
- Reviewed how F&O is getting input on this project
 - Public outreach: workshops, survey, kiosks, TAC

- POCD
- With geometry changes, how does the use change?
 - Consultant would collaborate with CT DOT to determine that, taking into consideration a regional perspective, growth rates, etc.
- If the public could be informed and understand how the corridor will grow, it will influence their decisions on which alternative they think is best suited for the upcoming needs
 - General consensus is that people like the two-way separated bike lanes (safer feeling) while still having the planted median (separation of opposing traffic) (essentially, alternatives 2 and 4)
- If successful with the dumbbells (zoning), it would make the area more appealing to developers (\$\$)
 - Creates a natural incentive
 - more like 616 New Park Ave
- I-84 rerouting concern with respect to the PM commute and all of the construction traffic that will need to be rerouted while that project is underway
 - Public is concerned that New Park Avenue will not be able to accommodate that temporary traffic influx given the changes that we're proposing
 - Answer: That I-84 construction has been taken into consideration with our 2030 volumes obtained from CT DOT and the analysis was presented today
- Has anyone looked at a rotary option for the intersection with New Britain Avenue?
 - Answer: No, simply because it would be very costly, but it's not out of the realm of possibilities
- Concerned that cars won't know to cross the separated bike lanes over the painted median here to access this driveway to Hartford Baking Co (see below)



- Answer: signage here could be an option but the hesitation will be good considering the separated bike lanes as well as the pocket park being right there
- Branding is going to become important as we move toward one final alternative
 - "The New New Park Avenue"
 - Linear Park/Trail System

Sign-In Sheet

Workshop Two

June 9, 2016

3:30 p.m.

Elmwood Community Center Room 110

Name	Organization	Email
Todd Dumais	West Hartford	todd.dumais@westhartfordct.gov
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Bob Fair	West Hartford	
Guilherme Louna	West Hartford	
Angela Louna	West Hartford	
Robert McCue	West Hartford P.D.	Rmc.Cue@westhartfordct.org
Elise Ross	CT DOT	elise.ross@ct.gov
Duane Martin	West Hartford Engineering	DuaneM@westhartfordct.gov
Mark McGovern	West Hartford	
Marc Volmer	FDO	
Matt Skaggs	FDO	
Chris Ferrero	FDO	
Katherine Brissman	FDO	
Randal Davis	CT DOT	Randal.davis@ct.gov

Sign-In Sheet

Workshop Two

June 9, 2016

3:30 p.m.

Elmwood Community Center Room 110



Sign-In Sheet

Workshop Two

June 9, 2016

Elmwood Community Center Room 110
6:30 p.m.

Sign-In Sheet

Workshop Two

June 9, 2016

Elmwood Community Center Room 110
6:30 p.m.



Appendix D

Intersection Capacity Analysis Worksheets
2030 Projected Traffic Volumes
Morning Peak Hour

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

AM Existing

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑	↑	
Traffic Volume (vph)	512	686	17	0	493	293	4	0	1	234	1	137
Future Volume (vph)	512	686	17	0	493	293	4	0	1	234	1	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	12	12	12	12	12	12	11	12	11
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.988				0.850			0.955			0.882
Flt Protected		0.950							0.968		0.950	0.990
Satd. Flow (prot)	1652	3211	0	0	3406	1599	0	1756	0	1625	1534	0
Flt Permitted		0.222							0.968		0.950	0.990
Satd. Flow (perm)	386	3211	0	0	3406	1599	0	1756	0	1625	1534	0
Right Turn on Red			Yes				No			Yes		Yes
Satd. Flow (RTOR)		9							204			159
Link Speed (mph)		30			30			30				30
Link Distance (ft)		386			245			138				2131
Travel Time (s)		8.8			5.6			3.1				48.4
Peak Hour Factor	0.94	0.93	0.27	0.25	0.87	0.85	0.50	0.25	0.25	0.79	0.25	0.76
Heavy Vehicles (%)	2%	4%	0%	0%	6%	1%	0%	0%	0%	2%	0%	3%
Adj. Flow (vph)	545	738	63	0	567	345	8	0	4	296	4	180
Shared Lane Traffic (%)										15%		
Lane Group Flow (vph)	545	801	0	0	567	345	0	12	0	252	228	0
Turn Type	D.P+P	NA			NA	pt+ov	Split	NA		Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2		2									
Detector Phase	1	1 2		2	2	2 4	5	5		4	4	
Switch Phase												
Minimum Initial (s)	5.0			15.0	15.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5			22.9	22.9		13.0	13.0		13.0	13.0	
Total Split (s)	10.0			35.0	35.0		10.0	10.0		35.0	35.0	
Total Split (%)	8.9%			31.3%	31.3%		8.9%	8.9%		31.3%	31.3%	
Maximum Green (s)	6.0			27.1	27.1		2.0	2.0		27.0	27.0	
Yellow Time (s)	3.0			3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0			4.9	4.9		5.0	5.0		5.0	5.0	
Lost Time Adjust (s)	0.0			0.0			0.0			0.0	0.0	
Total Lost Time (s)	4.0			7.9			8.0			8.0	8.0	
Lead/Lag	Lead			Lag	Lag				Lag	Lag		
Lead-Lag Optimize?	Yes			Yes	Yes				Yes	Yes		
Vehicle Extension (s)	1.5			2.5	2.5		1.5	1.5		1.5	1.5	
Recall Mode	None			C-Max	C-Max		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	71.4	75.4			27.1	57.1		5.0		22.0	22.0	
Actuated g/C Ratio	0.64	0.67			0.24	0.51		0.04		0.20	0.20	
v/c Ratio	0.78	0.37			0.69	0.42		0.04		0.79	0.53	
Control Delay	29.5	10.2			43.7	18.1		0.4		59.6	16.8	
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay	29.5	10.2			43.7	18.1		0.4		59.6	16.8	
LOS	C	B			D	B		A		E	B	

Lanes, Volumes, Timings
1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

AM Existing

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	22.0
Total Split (%)	20%
Maximum Green (s)	18.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	19.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

AM Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		18.0			34.0			0.4			39.3	
Approach LOS			B			C		A			D	
Queue Length 50th (ft)	232	107		196	150		0	183	44			
Queue Length 95th (ft)	#639	245		247	170		0	215	0			
Internal Link Dist (ft)		306		165			58			2051		
Turn Bay Length (ft)												
Base Capacity (vph)	702	2164		824	897		273		402	499		
Starvation Cap Reductn	0	0		0	0		0		0	0		
Spillback Cap Reductn	0	0		0	0		0		0	0		
Storage Cap Reductn	0	0		0	0		0		0	0		
Reduced v/c Ratio	0.78	0.37		0.69	0.38		0.04		0.63	0.46		

Intersection Summary

Area Type: Other

Cycle Length: 112

Actuated Cycle Length: 112

Offset: 22.1 (20%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 26.9

Intersection LOS: C

Intersection Capacity Utilization 69.5%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: New Park Ave. & New Britain Ave.



Lane Group	Ø3
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

AM Existing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑	↑	
Traffic Volume (vph)	512	686	17	0	493	293	4	0	1	234	1	137
Future Volume (vph)	512	686	17	0	493	293	4	0	1	234	1	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12	12	12	12	11	12	11
Total Lost time (s)	4.0	4.0			7.9	7.9		8.0		8.0	8.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.95	0.95	
Frt	1.00	0.99			1.00	0.85		0.95		1.00	0.88	
Flt Protected	0.95	1.00			1.00	1.00		0.97		0.95	0.99	
Satd. Flow (prot)	1652	3211			3406	1599		1756		1625	1534	
Flt Permitted	0.22	1.00			1.00	1.00		0.97		0.95	0.99	
Satd. Flow (perm)	386	3211			3406	1599		1756		1625	1534	
Peak-hour factor, PHF	0.94	0.93	0.27	0.25	0.87	0.85	0.50	0.25	0.25	0.79	0.25	0.76
Adj. Flow (vph)	545	738	63	0	567	345	8	0	4	296	4	180
RTOR Reduction (vph)	0	4	0	0	0	0	0	12	0	0	128	0
Lane Group Flow (vph)	545	797	0	0	567	345	0	0	0	252	100	0
Heavy Vehicles (%)	2%	4%	0%	0%	6%	1%	0%	0%	0%	2%	0%	3%
Turn Type	D.P+P	NA			NA	pt+ov	Split	NA		Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2		2									
Actuated Green, G (s)	61.1	65.1			20.7	50.6		1.0		22.0	22.0	
Effective Green, g (s)	61.1	65.1			20.7	50.6		1.0		22.0	22.0	
Actuated g/C Ratio	0.55	0.58			0.18	0.45		0.01		0.20	0.20	
Clearance Time (s)	4.0				7.9			8.0		8.0	8.0	
Vehicle Extension (s)	1.5				2.5			1.5		1.5	1.5	
Lane Grp Cap (vph)	667	1866			629	722		15		319	301	
v/s Ratio Prot	c0.29	0.25			c0.17	0.22		c0.00		c0.16	0.07	
v/s Ratio Perm	0.15											
v/c Ratio	0.82	0.43			0.90	0.48		0.01		0.79	0.33	
Uniform Delay, d1	22.7	13.1			44.7	21.5		55.0		42.8	38.7	
Progression Factor	1.00	1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	7.3	0.1			18.5	0.2		0.1		11.4	0.2	
Delay (s)	30.0	13.1			63.1	21.6		55.1		54.2	38.9	
Level of Service	C	B			E	C		E		D	D	
Approach Delay (s)		19.9			47.4			55.1			46.9	
Approach LOS		B			D			E			D	
Intersection Summary												
HCM 2000 Control Delay		33.9			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.86										
Actuated Cycle Length (s)		112.0			Sum of lost time (s)			31.9				
Intersection Capacity Utilization		69.5%			ICU Level of Service			C				
Analysis Period (min)		15										

c Critical Lane Group

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor

AM Existing



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑		↑↑	↑↑	↑
Traffic Volume (vph)	153	79	90	696	310	114
Future Volume (vph)	153	79	90	696	310	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	1.00
Frt			0.850			0.850
Flt Protected	0.950			0.994		
Satd. Flow (prot)	1770	1599	0	3526	3539	1615
Flt Permitted	0.950			0.856		
Satd. Flow (perm)	1770	1599	0	3037	3539	1615
Right Turn on Red			Yes			Yes
Satd. Flow (RTOR)			113			141
Link Speed (mph)	30			30	30	
Link Distance (ft)	297			639	425	
Travel Time (s)	6.8			14.5	9.7	
Peak Hour Factor	0.89	0.70	0.84	0.91	0.91	0.81
Heavy Vehicles (%)	2%	1%	0%	2%	2%	0%
Adj. Flow (vph)	172	113	107	765	341	141
Shared Lane Traffic (%)						
Lane Group Flow (vph)	172	113	0	872	341	141
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases				2		2
Detector Phase	4	4	1	1 2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		30.0	30.0
Minimum Split (s)	14.0	14.0	12.0		36.0	36.0
Total Split (s)	22.0	22.0	19.0		46.0	46.0
Total Split (%)	25.3%	25.3%	21.8%		52.9%	52.9%
Maximum Green (s)	16.0	16.0	15.0		40.0	40.0
Yellow Time (s)	4.0	4.0	3.0		4.0	4.0
All-Red Time (s)	2.0	2.0	1.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0
Recall Mode	None	None	None		Max	Max
Act Effct Green (s)	13.5	13.5		55.7	40.1	40.1
Actuated g/C Ratio	0.16	0.16		0.67	0.48	0.48
v/c Ratio	0.60	0.32		0.41	0.20	0.17
Control Delay	41.9	9.1		5.4	13.4	3.1
Queue Delay	0.0	0.0		0.0	0.0	0.0
Total Delay	41.9	9.1		5.4	13.4	3.1
LOS	D	A		A	B	A
Approach Delay	28.9			5.4	10.4	
Approach LOS	C			A	B	
Queue Length 50th (ft)	86	0		78	54	0
Queue Length 95th (ft)	148	21		111	83	22

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
AM Existing



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	217			559	345	
Turn Bay Length (ft)						
Base Capacity (vph)	341	399		2171	1707	851
Starvation Cap Reductn	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.50	0.28		0.40	0.20	0.17

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 83.2

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 11.0

Intersection LOS: B

Intersection Capacity Utilization 68.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: New Park Ave. & Talcott Rd.



HCM Signalized Intersection Capacity Analysis
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
AM Existing

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	153	79	90	696	310	114
Future Volume (vph)	153	79	90	696	310	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.99	1.00	1.00
Satd. Flow (prot)	1770	1599		3526	3539	1615
Flt Permitted	0.95	1.00		0.86	1.00	1.00
Satd. Flow (perm)	1770	1599		3037	3539	1615
Peak-hour factor, PHF	0.89	0.70	0.84	0.91	0.91	0.81
Adj. Flow (vph)	172	113	107	765	341	141
RTOR Reduction (vph)	0	95	0	0	0	73
Lane Group Flow (vph)	172	18	0	872	341	68
Heavy Vehicles (%)	2%	1%	0%	2%	2%	0%
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases			2		2	
Actuated Green, G (s)	13.5	13.5		53.6	40.1	40.1
Effective Green, g (s)	13.5	13.5		53.6	40.1	40.1
Actuated g/C Ratio	0.16	0.16		0.65	0.48	0.48
Clearance Time (s)	6.0	6.0			6.0	6.0
Vehicle Extension (s)	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	287	259		2038	1707	779
v/s Ratio Prot	c0.10	0.01		c0.07	0.10	
v/s Ratio Perm				c0.21		0.04
v/c Ratio	0.60	0.07		0.43	0.20	0.09
Uniform Delay, d1	32.3	29.5		7.2	12.3	11.6
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.9	0.2		0.2	0.3	0.2
Delay (s)	36.2	29.6		7.4	12.6	11.8
Level of Service	D	C		A	B	B
Approach Delay (s)	33.6			7.4	12.4	
Approach LOS	C			A	B	
Intersection Summary						
HCM 2000 Control Delay		13.4		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.46				
Actuated Cycle Length (s)		83.1		Sum of lost time (s)		16.0
Intersection Capacity Utilization		68.7%		ICU Level of Service		C
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

AM Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	6	59	0	85	9	737	92	57	378	23
Future Volume (vph)	3	0	6	59	0	85	9	737	92	57	378	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0		0	0		0	249		0
Storage Lanes	0			0		0	1	0		0	1	0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95
Frt				0.904			0.850					0.985
Flt Protected				0.986			0.950					0.950
Satd. Flow (prot)	0	1694	0	0	1719	1553	0	3495	0	1736	3524	0
Flt Permitted		0.908			0.739			0.945		0.258		
Satd. Flow (perm)	0	1560	0	0	1337	1553	0	3306	0	471	3524	0
Right Turn on Red				Yes			Yes			Yes		Yes
Satd. Flow (RTOR)		92				108			36			28
Link Speed (mph)		30			30			30				30
Link Distance (ft)		156			393			425				656
Travel Time (s)		3.5			8.9			9.7				14.9
Peak Hour Factor	0.38	0.25	0.30	0.87	0.25	0.79	0.56	0.94	0.85	0.79	0.86	0.48
Heavy Vehicles (%)	0%	0%	0%	5%	0%	4%	0%	1%	4%	4%	1%	0%
Adj. Flow (vph)	8	0	20	68	0	108	16	784	108	72	440	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	28	0	0	68	108	0	908	0	72	488	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4		4	2			2		
Detector Phase	4	4		4	4	4	2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		5.0	8.0	
Minimum Split (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		9.5	12.0	
Total Split (s)	16.0	16.0		16.0	16.0	16.0	40.0	40.0		9.5	40.0	
Total Split (%)	24.4%	24.4%		24.4%	24.4%	24.4%	61.1%	61.1%		14.5%	61.1%	
Maximum Green (s)	12.0	12.0		12.0	12.0	12.0	36.0	36.0		5.0	36.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.5	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		4.0			4.0	4.0		4.0		4.5	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None	None	None	None		None	None	
Act Effct Green (s)		12.1			12.1	12.1		23.9		22.9	23.9	
Actuated g/C Ratio		0.30			0.30	0.30		0.58		0.56	0.58	
v/c Ratio		0.05			0.17	0.20		0.47		0.15	0.24	
Control Delay		0.2			20.3	6.6		8.8		4.5	7.0	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		0.2			20.3	6.6		8.8		4.5	7.0	
LOS		A			C	A		A		A	A	
Approach Delay		0.2			11.9			8.8		6.7		

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

AM Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS					A		B		A			A
Queue Length 50th (ft)				0		16	0	87		6	38	
Queue Length 95th (ft)				0		14	26	146		16	65	
Internal Link Dist (ft)				76			313		345			576
Turn Bay Length (ft)												249
Base Capacity (vph)				690			545	697	2669	478	2843	
Starvation Cap Reductn				0			0	0	0	0	0	
Spillback Cap Reductn				0			0	0	0	0	0	
Storage Cap Reductn				0			0	0	0	0	0	
Reduced v/c Ratio				0.04			0.12	0.15	0.34	0.15	0.17	

Intersection Summary

Area Type: Other

Cycle Length: 65.5

Actuated Cycle Length: 41

Natural Cycle: 40

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 8.3

Intersection LOS: A

Intersection Capacity Utilization 52.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: New Park Ave. & Colt Dr./Oakwood Ave.



HCM Signalized Intersection Capacity Analysis

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

AM Existing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	6	59	0	85	9	737	92	57	378	23
Future Volume (vph)	3	0	6	59	0	85	9	737	92	57	378	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0		4.0		4.5	4.0
Lane Util. Factor		1.00				1.00	1.00		0.95		1.00	0.95
Frt		0.90				1.00	0.85		0.98		1.00	0.99
Flt Protected		0.99				0.95	1.00		1.00		0.95	1.00
Satd. Flow (prot)		1693				1719	1553		3496		1736	3525
Flt Permitted		0.91				0.74	1.00		0.95		0.26	1.00
Satd. Flow (perm)		1558				1337	1553		3307		471	3525
Peak-hour factor, PHF	0.38	0.25	0.30	0.87	0.25	0.79	0.56	0.94	0.85	0.79	0.86	0.48
Adj. Flow (vph)	8	0	20	68	0	108	16	784	108	72	440	48
RTOR Reduction (vph)	0	24	0	0	0	91	0	18	0	0	14	0
Lane Group Flow (vph)	0	4	0	0	68	17	0	890	0	72	474	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	4%	0%	1%	4%	4%	1%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4				4			2		1	2
Permitted Phases	4			4			4	2			2	
Actuated Green, G (s)		6.8			6.8	6.8		21.3		23.6	21.3	
Effective Green, g (s)		6.8			6.8	6.8		21.3		23.6	21.3	
Actuated g/C Ratio		0.16				0.16	0.16		0.50		0.55	0.50
Clearance Time (s)		4.0				4.0	4.0		4.0		4.5	4.0
Vehicle Extension (s)		4.0				4.0	4.0		4.0		3.0	4.0
Lane Grp Cap (vph)	246			211	246		1641			326	1750	
v/s Ratio Prot										c0.01	0.13	
v/s Ratio Perm	0.00			c0.05	0.01		c0.27			0.11		
v/c Ratio	0.02			0.32	0.07		0.54			0.22	0.27	
Uniform Delay, d1	15.2			16.0	15.4		7.4			4.7	6.3	
Progression Factor	1.00			1.00	1.00		1.00			1.00	1.00	
Incremental Delay, d2	0.0			1.2	0.2		0.5			0.3	0.1	
Delay (s)	15.3			17.2	15.5		7.9			5.1	6.4	
Level of Service	B			B	B		A			A	A	
Approach Delay (s)	15.3			16.2			7.9				6.2	
Approach LOS	B			B			A				A	
Intersection Summary												
HCM 2000 Control Delay		8.3			HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio		0.47										
Actuated Cycle Length (s)		42.9			Sum of lost time (s)					12.5		
Intersection Capacity Utilization		52.9%			ICU Level of Service					A		
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

AM Existing

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑		↓		↑	↑↓		↑	↑↓	↑
Traffic Volume (vph)	144	3	80	2	1	3	115	651	4	4	387	172
Future Volume (vph)	144	3	80	2	1	3	115	651	4	4	387	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	315		0	200		0
Storage Lanes	1		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.932			0.997				0.850
Flt Protected	0.950	0.956			0.988		0.950			0.950		
Satd. Flow (prot)	1649	1664	1553	0	1750	0	1770	3530	0	1805	3574	1568
Flt Permitted	0.950	0.956			0.988		0.408			0.384		
Satd. Flow (perm)	1649	1664	1553	0	1750	0	760	3530	0	730	3574	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			108			8			1			205
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		189			135			656			375	
Travel Time (s)		4.3			3.1			14.9			8.5	
Peak Hour Factor	0.78	0.38	0.80	0.50	0.25	0.38	0.78	0.94	0.33	1.00	0.93	0.84
Heavy Vehicles (%)	4%	0%	4%	0%	0%	0%	2%	2%	0%	0%	1%	3%
Adj. Flow (vph)	185	8	100	4	4	8	147	693	12	4	416	205
Shared Lane Traffic (%)	48%											
Lane Group Flow (vph)	96	97	100	0	16	0	147	705	0	4	416	205
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	8	8	8 1	7	7		1	6		5	2	2 8
Permitted Phases							6			2		
Detector Phase	8	8	8 1	7	7		1	6		5	2	2 8
Switch Phase												
Minimum Initial (s)	6.0	6.0		4.0	4.0		4.0	4.0		6.0	6.0	
Minimum Split (s)	10.0	10.0		8.0	8.0		8.0	8.0		10.0	10.0	
Total Split (s)	29.0	29.0		14.0	14.0		14.0	14.0		29.0	29.0	
Total Split (%)	26.1%	26.1%		12.6%	12.6%		12.6%	12.6%		26.1%	26.1%	
Maximum Green (s)	25.0	25.0		10.0	10.0		10.9	10.0		25.0	25.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		0.1	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0			3.1	4.0		4.0	4.0	
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	8.1	8.1	19.7		6.4		20.6	18.3		15.5	10.8	24.0
Actuated g/C Ratio	0.21	0.21	0.52		0.17		0.54	0.48		0.41	0.29	0.63
v/c Ratio	0.27	0.27	0.12		0.05		0.23	0.41		0.01	0.41	0.19
Control Delay	17.9	17.8	2.5		15.7		6.3	9.2		6.8	14.6	1.4
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	19.0
Total Split (s)	25.0
Total Split (%)	23%
Maximum Green (s)	23.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	4.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

AM Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	17.9	17.8	2.5		15.7		6.3	9.2		6.8	14.6	1.4
LOS	B	B	A		B		A	A		A	B	A
Approach Delay		12.6			15.7			8.7			10.2	
Approach LOS		B			B			A			B	
Queue Length 50th (ft)	15	15	0		1		9	28		0	33	0
Queue Length 95th (ft)	58	27	15		3		46	163		5	104	11
Internal Link Dist (ft)		109			55			576			295	
Turn Bay Length (ft)							315				200	
Base Capacity (vph)	1180	1191	1147		512		732	1710		1301	2558	1524
Starvation Cap Reductn	0	0	0		0		0	0		0	0	0
Spillback Cap Reductn	0	0	0		0		0	0		0	0	0
Storage Cap Reductn	0	0	0		0		0	0		0	0	0
Reduced v/c Ratio	0.08	0.08	0.09		0.03		0.20	0.41		0.00	0.16	0.13

Intersection Summary

Area Type: Other

Cycle Length: 111

Actuated Cycle Length: 37.8

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 9.9

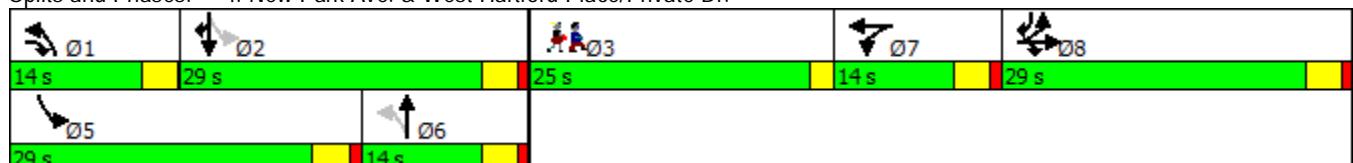
Intersection LOS: A

Intersection Capacity Utilization 43.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: New Park Ave. & West Hartford Place/Private Dr.



Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

AM Existing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑		↓		↑	↑↓		↑	↑↓	↑
Traffic Volume (vph)	144	3	80	2	1	3	115	651	4	4	387	172
Future Volume (vph)	144	3	80	2	1	3	115	651	4	4	387	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		3.1	4.0		4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85		0.93		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1649	1665	1553		1750		1770	3531		1805	3574	1568
Flt Permitted	0.95	0.96	1.00		0.99		0.41	1.00		0.38	1.00	1.00
Satd. Flow (perm)	1649	1665	1553		1750		761	3531		729	3574	1568
Peak-hour factor, PHF	0.78	0.38	0.80	0.50	0.25	0.38	0.78	0.94	0.33	1.00	0.93	0.84
Adj. Flow (vph)	185	8	100	4	4	8	147	693	12	4	416	205
RTOR Reduction (vph)	0	0	58	0	8	0	0	1	0	0	0	104
Lane Group Flow (vph)	96	97	42	0	8	0	147	704	0	4	416	101
Heavy Vehicles (%)	4%	0%	4%	0%	0%	0%	2%	2%	0%	0%	1%	3%
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	8	8	8 1	7	7		1	6		5	2	2 8
Permitted Phases							6			2		
Actuated Green, G (s)	8.1	8.1	18.4		0.9		23.1	18.3		14.5	13.7	21.8
Effective Green, g (s)	8.1	8.1	18.4		0.9		23.1	18.3		14.5	13.7	21.8
Actuated g/C Ratio	0.18	0.18	0.42		0.02		0.52	0.41		0.33	0.31	0.49
Clearance Time (s)	4.0	4.0			4.0		3.1	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	302	305	647		35		542	1465		259	1110	775
v/s Ratio Prot	0.06	c0.06	0.03		c0.00		c0.04	c0.20		0.00	0.12	0.06
v/s Ratio Perm							0.10			0.00		
v/c Ratio	0.32	0.32	0.06		0.23		0.27	0.48		0.02	0.37	0.13
Uniform Delay, d1	15.6	15.6	7.7		21.3		5.6	9.4		10.0	11.9	6.0
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.6	0.6	0.0		3.4		0.3	0.3		0.0	0.2	0.1
Delay (s)	16.2	16.2	7.7		24.7		5.9	9.7		10.0	12.1	6.1
Level of Service	B	B	A		C		A	A		A	B	A
Approach Delay (s)		13.3			24.7			9.0			10.1	
Approach LOS		B			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			10.2				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			44.1				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			43.1%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

AM Existing

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓		↑	↑	↑	↑	↑↓		↑	↑↓	
Traffic Volume (vph)	28	268	114	198	142	289	89	414	262	230	284	19
Future Volume (vph)	28	268	114	198	142	289	89	414	262	230	284	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	0		0	150		0	410		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.951			0.850			0.944			0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3388	0	1770	1863	1538	1736	3253	0	1770	3387	0
Flt Permitted	0.655			0.187			0.555			0.135		
Satd. Flow (perm)	1232	3388	0	348	1863	1538	1014	3253	0	251	3387	0
Right Turn on Red		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		69			336			104			10	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		282			376			402			1063	
Travel Time (s)		6.4			8.5			9.1			24.2	
Peak Hour Factor	0.70	0.77	0.68	0.87	0.88	0.86	0.80	0.88	0.94	0.91	0.97	0.59
Heavy Vehicles (%)	1%	1%	2%	2%	2%	5%	4%	4%	6%	2%	5%	5%
Adj. Flow (vph)	40	348	168	228	161	336	111	470	279	253	293	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	516	0	228	161	336	111	749	0	253	325	0
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6			2		
Detector Phase	7	4		3	8	8	1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	9.0		5.0	9.0	9.0	6.0	15.0		6.0	15.0	
Minimum Split (s)	9.5	14.0		9.5	14.0	14.0	10.5	20.1		10.5	20.1	
Total Split (s)	14.0	21.0		14.0	21.0	21.0	14.0	21.0		14.0	21.0	
Total Split (%)	14.0%	21.0%		14.0%	21.0%	21.0%	14.0%	21.0%		14.0%	21.0%	
Maximum Green (s)	10.0	16.0		10.0	16.0	16.0	10.0	15.9		10.0	15.9	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.6		3.0	3.6	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes				Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	24.1	17.0		37.1	29.7	48.2	39.7	30.8		49.6	37.4	
Actuated g/C Ratio	0.24	0.17		0.37	0.30	0.48	0.40	0.31		0.50	0.37	
v/c Ratio	0.12	0.82		0.66	0.29	0.37	0.24	0.70		0.74	0.26	
Control Delay	20.8	45.9		32.0	29.4	3.3	18.8	32.7		35.4	25.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	22.5
Total Split (s)	30.0
Total Split (%)	30%
Maximum Green (s)	25.5
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	10
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

AM Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	20.8	45.9		32.0	29.4	3.3	18.8	32.7		35.4	25.1	
LOS	C	D		C	C	A	B	C		D	C	
Approach Delay		44.1			18.1			30.9			29.6	
Approach LOS		D			B			C			C	
Queue Length 50th (ft)	16	144		100	80	0	34	187		85	68	
Queue Length 95th (ft)	29	170		155	138	44	84	#390		#320	145	
Internal Link Dist (ft)		202			296			322			983	
Turn Bay Length (ft)	50						150			410		
Base Capacity (vph)	400	651		344	554	915	496	1073		344	1273	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.10	0.79		0.66	0.29	0.37	0.22	0.70		0.74	0.26	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 70 (70%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 29.9

Intersection LOS: C

Intersection Capacity Utilization 69.7%

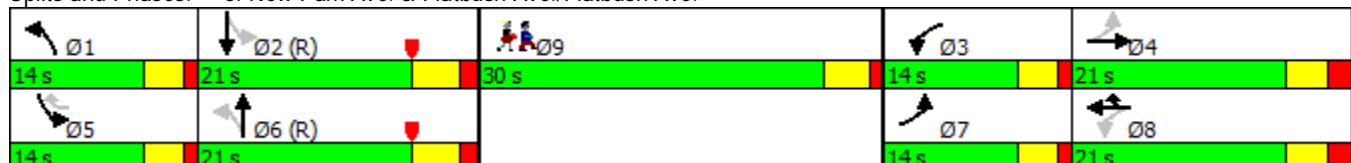
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: New Park Ave. & Flatbush Ave./Flatbush Ave.



Lane Group	Ø9
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

AM Existing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘		↑ ↗	↑ ↘		↑ ↗	↑ ↘		↑ ↗	↑ ↘	
Traffic Volume (vph)	28	268	114	198	142	289	89	414	262	230	284	19
Future Volume (vph)	28	268	114	198	142	289	89	414	262	230	284	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.1		4.0	5.1	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	1.00		1.00	0.94		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	3389		1770	1863	1538	1736	3254		1770	3387	
Flt Permitted	0.66	1.00		0.19	1.00	1.00	0.56	1.00		0.14	1.00	
Satd. Flow (perm)	1232	3389		347	1863	1538	1014	3254		252	3387	
Peak-hour factor, PHF	0.70	0.77	0.68	0.87	0.88	0.86	0.80	0.88	0.94	0.91	0.97	0.59
Adj. Flow (vph)	40	348	168	228	161	336	111	470	279	253	293	32
RTOR Reduction (vph)	0	56	0	0	0	187	0	77	0	0	7	0
Lane Group Flow (vph)	40	460	0	228	161	149	111	672	0	253	318	0
Heavy Vehicles (%)	1%	1%	2%	2%	2%	5%	4%	4%	6%	2%	5%	5%
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6			2		
Actuated Green, G (s)	22.6	18.6		37.7	29.7	44.2	33.4	25.6		44.1	32.3	
Effective Green, g (s)	22.6	18.6		37.7	29.7	44.2	33.4	25.6		44.1	32.3	
Actuated g/C Ratio	0.23	0.19		0.38	0.30	0.44	0.33	0.26		0.44	0.32	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	300	630		345	553	756	394	833		331	1094	
v/s Ratio Prot	0.01	0.14	c0.10	0.09	0.06	0.02	0.21		c0.11	0.09		
v/s Ratio Perm	0.02		c0.15		0.04	0.07			c0.23			
v/c Ratio	0.13	0.73		0.66	0.29	0.20	0.28	0.81		0.76	0.29	
Uniform Delay, d1	30.6	38.3		23.5	27.0	17.0	23.7	34.9		21.3	25.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	3.6		3.7	0.1	0.0	0.1	8.2		9.1	0.7	
Delay (s)	30.7	41.9		27.2	27.2	17.1	23.8	43.1		30.4	26.0	
Level of Service	C	D		C	C	B	C	D		C	C	
Approach Delay (s)		41.1			22.5			40.6			27.9	
Approach LOS		D			C			D			C	
Intersection Summary												
HCM 2000 Control Delay		33.2			HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio		0.73										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)				22.6			
Intersection Capacity Utilization		69.7%			ICU Level of Service				C			
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

AM Existing

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	289	0	1	0	361	354	2	0	210	5
Future Volume (vph)	3	0	289	0	1	0	361	354	2	0	210	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		80
Storage Lanes	1		2	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Fr _t			0.850					0.998				0.850
Flt Protected	0.950							0.977				
Satd. Flow (prot)	1805	0	2760	0	1900	0	0	3434	0	0	3406	1615
Flt Permitted	0.755							0.455				
Satd. Flow (perm)	1434	0	2760	0	1900	0	0	1599	0	0	3406	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			292					1				128
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		506			113			1063			446	
Travel Time (s)		11.5			2.6			24.2			10.1	
Peak Hour Factor	0.75	0.92	0.99	0.25	0.25	0.25	0.97	0.89	0.25	0.25	0.85	0.62
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	2%	3%	0%	0%	6%	0%
Adj. Flow (vph)	4	0	292	0	4	0	372	398	8	0	247	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	0	292	0	4	0	0	778	0	0	247	8
Turn Type	Perm		custom		NA		Perm	NA			NA	Prot
Protected Phases		1	8		4			6			2	2
Permitted Phases	8			4			6	1		2		
Detector Phase	8	1	8	4	4		6	6		2	2	2
Switch Phase												
Minimum Initial (s)	10.0			5.0	5.0		15.0	15.0		15.0	15.0	15.0
Minimum Split (s)	15.0			24.1	24.1		21.3	21.3		21.3	21.3	21.3
Total Split (s)	30.0			21.1	21.1		68.3	68.3		36.3	36.3	36.3
Total Split (%)	24.9%			17.5%	17.5%		56.8%	56.8%		30.2%	30.2%	30.2%
Maximum Green (s)	25.0			15.0	15.0		62.0	62.0		30.0	30.0	30.0
Yellow Time (s)	3.0			3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0			3.1	3.1		3.3	3.3		3.3	3.3	3.3
Lost Time Adjust (s)	0.0			0.0			0.0			0.0	0.0	0.0
Total Lost Time (s)	5.0			6.1			6.3			6.3	6.3	
Lead/Lag									Lag	Lag	Lag	
Lead-Lag Optimize?									Yes	Yes	Yes	
Vehicle Extension (s)	2.0			2.0	2.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None			None	None		None	None		None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	10.0			20.0		8.9		27.0			15.0	15.0
Actuated g/C Ratio	0.21			0.41		0.18		0.56			0.31	0.31
v/c Ratio	0.01			0.22		0.01		0.41			0.23	0.01
Control Delay	15.3			2.0		16.0		6.9			13.1	0.0
Queue Delay	0.0			0.0		0.0		0.0			0.0	0.0

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Fr _t		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	12.0	22.0
Total Split (s)	32.0	22.0
Total Split (%)	27%	18%
Maximum Green (s)	25.0	18.0
Yellow Time (s)	3.0	4.0
All-Red Time (s)	4.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	2.0	3.0
Recall Mode	None	None
Walk Time (s)		5.0
Flash Dont Walk (s)		12.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

AM Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	15.3		2.0		16.0			6.9			13.1	0.0
LOS	B		A		B			A			B	A
Approach Delay		2.2			16.0			6.9			12.7	
Approach LOS		A			B			A			B	
Queue Length 50th (ft)	1		0		1			56			26	0
Queue Length 95th (ft)	6		18		2			84			45	0
Internal Link Dist (ft)		426			33			983			366	
Turn Bay Length (ft)												80
Base Capacity (vph)	742		2335		940			3434			2115	1051
Starvation Cap Reductn	0		0		0			0			0	0
Spillback Cap Reductn	0		0		0			0			0	0
Storage Cap Reductn	0		0		0			0			0	0
Reduced v/c Ratio	0.01		0.13		0.00			0.23			0.12	0.01

Intersection Summary

Area Type: Other

Cycle Length: 120.3

Actuated Cycle Length: 48.3

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 7.0

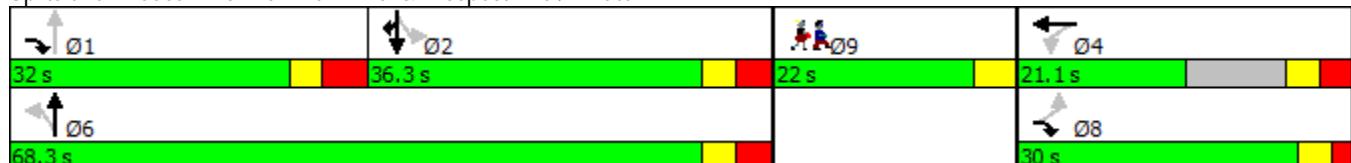
Intersection LOS: A

Intersection Capacity Utilization 52.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: New Park Ave. & Prospect Ave./Private Dr.



Lane Group	Ø1	Ø9
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

AM Existing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↓			↑↑			↑↑	↑
Traffic Volume (vph)	3	0	289	0	1	0	361	354	2	0	210	5
Future Volume (vph)	3	0	289	0	1	0	361	354	2	0	210	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			7.0		6.1			6.3		6.3	6.3
Lane Util. Factor	1.00			0.88		1.00		0.95			0.95	1.00
Frt	1.00			0.85		1.00		1.00			1.00	0.85
Flt Protected	0.95			1.00		1.00		0.98			1.00	1.00
Satd. Flow (prot)	1805			2760		1900		3435			3406	1615
Flt Permitted	0.76			1.00		1.00		0.46			1.00	1.00
Satd. Flow (perm)	1435			2760		1900		1600			3406	1615
Peak-hour factor, PHF	0.75	0.92	0.99	0.25	0.25	0.25	0.97	0.89	0.25	0.25	0.85	0.62
Adj. Flow (vph)	4	0	292	0	4	0	372	398	8	0	247	8
RTOR Reduction (vph)	0	0	201	0	0	0	0	0	0	0	0	6
Lane Group Flow (vph)	4	0	91	0	4	0	0	778	0	0	247	2
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	2%	3%	0%	0%	6%	0%
Turn Type	Perm		custom		NA		Perm	NA		NA	Prot	
Protected Phases			1 8		4			6			2	2
Permitted Phases	8			4			6	1		2		
Actuated Green, G (s)	10.0		20.0		8.9			27.0			15.0	15.0
Effective Green, g (s)	10.0		15.0		8.9			27.0			15.0	15.0
Actuated g/C Ratio	0.21		0.31		0.18			0.56			0.31	0.31
Clearance Time (s)	5.0				6.1			6.3			6.3	6.3
Vehicle Extension (s)	2.0				2.0			3.0			3.0	3.0
Lane Grp Cap (vph)	297		857		350			1920			1057	501
v/s Ratio Prot		c0.03			0.00			c0.23			0.07	0.00
v/s Ratio Perm	0.00											
v/c Ratio	0.01		0.11		0.01			0.40			0.23	0.00
Uniform Delay, d1	15.2		11.9		16.1			6.1			12.4	11.5
Progression Factor	1.00		1.00		1.00			1.00			1.00	1.00
Incremental Delay, d2	0.0		0.0		0.0			0.1			0.1	0.0
Delay (s)	15.2		11.9		16.1			6.2			12.5	11.5
Level of Service	B		B		B			A			B	B
Approach Delay (s)		11.9			16.1			6.2			12.5	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay		8.7			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		48.3			Sum of lost time (s)			23.4				
Intersection Capacity Utilization		52.6%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

Appendix D

Intersection Capacity Analysis Worksheets
2030 Projected Traffic Volumes
Afternoon Peak Hour

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

PM Existing

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑	↑	
Traffic Volume (vph)	265	773	3	1	787	378	0	0	1	407	2	314
Future Volume (vph)	265	773	3	1	787	378	0	0	1	407	2	314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	12	12	12	12	12	12	11	12	11
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.999				0.850			0.865			0.869
Flt Protected		0.950								0.950		0.994
Satd. Flow (prot)	1668	3322	0	0	3566	1599	0	1236	0	1625	1527	0
Flt Permitted	0.193				0.949					0.950		0.994
Satd. Flow (perm)	339	3322	0	0	3384	1599	0	1236	0	1625	1527	0
Right Turn on Red			Yes				No			Yes		Yes
Satd. Flow (RTOR)									305			292
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		386			245			138			2131	
Travel Time (s)		8.8			5.6			3.1			48.4	
Peak Hour Factor	0.92	0.95	0.75	0.25	0.91	0.86	0.25	0.25	0.25	0.89	0.50	0.91
Heavy Vehicles (%)	1%	1%	67%	50%	1%	1%	0%	0%	33%	2%	100%	1%
Adj. Flow (vph)	288	814	4	4	865	440	0	0	4	457	4	345
Shared Lane Traffic (%)										10%		
Lane Group Flow (vph)	288	818	0	0	869	440	0	4	0	411	395	0
Turn Type	D.P+P	NA		Perm	NA	pt+ov		NA		Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2			2								
Detector Phase	1	1 2		2	2	2 4	5	5		4	4	
Switch Phase												
Minimum Initial (s)	5.0			15.0	15.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5			22.9	22.9		13.0	13.0		13.0	13.0	
Total Split (s)	10.0			35.0	35.0		10.0	10.0		35.0	35.0	
Total Split (%)	8.9%			31.3%	31.3%		8.9%	8.9%		31.3%	31.3%	
Maximum Green (s)	6.0			27.1	27.1		2.0	2.0		27.0	27.0	
Yellow Time (s)	3.0			3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0			4.9	4.9		5.0	5.0		5.0	5.0	
Lost Time Adjust (s)	0.0			0.0			0.0			0.0	0.0	
Total Lost Time (s)	4.0			7.9			8.0			8.0	8.0	
Lead/Lag	Lead			Lag	Lag				Lag	Lag		
Lead-Lag Optimize?	Yes			Yes	Yes				Yes	Yes		
Vehicle Extension (s)	1.5			2.5	2.5		1.5	1.5		1.5	1.5	
Recall Mode	None			C-Max	C-Max		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	54.5	58.5		27.1	73.0		2.0		39.5	39.5		
Actuated g/C Ratio	0.49	0.52		0.24	0.65		0.02		0.35	0.35		
v/c Ratio	0.65	0.47		1.06	0.42		0.01		0.72	0.54		
Control Delay	29.0	19.2		90.6	9.4		0.0		39.2	10.2		
Queue Delay	0.0	0.0		0.0	0.0		0.0		0.0	0.0		
Total Delay	29.0	19.2		90.6	9.4		0.0		39.2	10.2		
LOS	C	B		F	A		A		D	B		

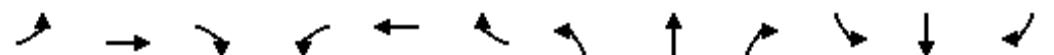
Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	22.0
Total Split (%)	20%
Maximum Green (s)	18.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	19.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

PM Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		21.8			63.3						25.0	
Approach LOS			C			E						C
Queue Length 50th (ft)	107	175			-363	139		0		273	54	
Queue Length 95th (ft)	#350	307			#490	92		0		355	0	
Internal Link Dist (ft)		306			165			58			2051	
Turn Bay Length (ft)												
Base Capacity (vph)	444	1736			818	1042		321		572	727	
Starvation Cap Reductn	0	0			0	0		0		0	0	
Spillback Cap Reductn	0	0			0	0		0		0	0	
Storage Cap Reductn	0	0			0	0		0		0	0	
Reduced v/c Ratio	0.65	0.47			1.06	0.42		0.01		0.72	0.54	

Intersection Summary

Area Type: Other

Cycle Length: 112

Actuated Cycle Length: 112

Offset: 32.1 (29%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 39.4

Intersection LOS: D

Intersection Capacity Utilization 87.4%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: New Park Ave. & New Britain Ave.



Lane Group	Ø3
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

PM Existing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑	↑	
Traffic Volume (vph)	265	773	3	1	787	378	0	0	1	407	2	314
Future Volume (vph)	265	773	3	1	787	378	0	0	1	407	2	314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12	12	12	12	11	12	11
Total Lost time (s)	4.0	4.0			7.9	7.9		8.0		8.0	8.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.95	0.95	
Frt	1.00	1.00			1.00	0.85		0.86		1.00	0.87	
Flt Protected	0.95	1.00			1.00	1.00		1.00		0.95	0.99	
Satd. Flow (prot)	1668	3323			3565	1599		1236		1625	1527	
Flt Permitted	0.19	1.00			0.95	1.00		1.00		0.95	0.99	
Satd. Flow (perm)	339	3323			3383	1599		1236		1625	1527	
Peak-hour factor, PHF	0.92	0.95	0.75	0.25	0.91	0.86	0.25	0.25	0.25	0.89	0.50	0.91
Adj. Flow (vph)	288	814	4	4	865	440	0	0	4	457	4	345
RTOR Reduction (vph)	0	0	0	0	0	0	0	4	0	0	189	0
Lane Group Flow (vph)	288	818	0	0	869	440	0	0	0	411	206	0
Heavy Vehicles (%)	1%	1%	67%	50%	1%	1%	0%	0%	33%	2%	100%	1%
Turn Type	D.P+P	NA		Perm	NA	pt+ov		NA		Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2			2								
Actuated Green, G (s)	44.2	48.2			20.7	60.2		0.4		39.5	39.5	
Effective Green, g (s)	44.2	48.2			20.7	60.2		0.4		39.5	39.5	
Actuated g/C Ratio	0.39	0.43			0.18	0.54		0.00		0.35	0.35	
Clearance Time (s)	4.0				7.9			8.0		8.0	8.0	
Vehicle Extension (s)	1.5				2.5			1.5		1.5	1.5	
Lane Grp Cap (vph)	412	1430			625	859		4		573	538	
v/s Ratio Prot	c0.15	0.25				0.28		c0.00		c0.25	0.13	
v/s Ratio Perm	0.13				c0.26							
v/c Ratio	0.70	0.57			1.39	0.51		0.00		0.72	0.38	
Uniform Delay, d1	26.3	24.1			45.6	16.5		55.6		31.4	27.1	
Progression Factor	1.00	1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	4.2	0.3			185.4	0.2		0.1		3.6	0.2	
Delay (s)	30.4	24.5			231.0	16.7		55.7		35.0	27.3	
Level of Service	C	C			F	B		E		C	C	
Approach Delay (s)		26.0			159.0			55.7			31.2	
Approach LOS		C			F			E			C	
Intersection Summary												
HCM 2000 Control Delay		81.3			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		0.92										
Actuated Cycle Length (s)		112.0			Sum of lost time (s)			31.9				
Intersection Capacity Utilization		87.4%			ICU Level of Service			E				
Analysis Period (min)		15										

c Critical Lane Group

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
PM Existing

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	131	104	116	514	658	236
Future Volume (vph)	131	104	116	514	658	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	1.00
Frt			0.850			0.850
Flt Protected	0.950			0.991		
Satd. Flow (prot)	1787	1615	0	3548	3574	1615
Flt Permitted	0.950			0.709		
Satd. Flow (perm)	1787	1615	0	2538	3574	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		135				268
Link Speed (mph)	30			30	30	
Link Distance (ft)	297			639	425	
Travel Time (s)	6.8			14.5	9.7	
Peak Hour Factor	0.94	0.77	0.88	0.81	0.88	0.88
Heavy Vehicles (%)	1%	0%	0%	1%	1%	0%
Adj. Flow (vph)	139	135	132	635	748	268
Shared Lane Traffic (%)						
Lane Group Flow (vph)	139	135	0	767	748	268
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases				2		2
Detector Phase	4	4	1	1 2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		30.0	30.0
Minimum Split (s)	14.0	14.0	12.0		36.0	36.0
Total Split (s)	22.0	22.0	19.0		46.0	46.0
Total Split (%)	25.3%	25.3%	21.8%		52.9%	52.9%
Maximum Green (s)	16.0	16.0	15.0		40.0	40.0
Yellow Time (s)	4.0	4.0	3.0		4.0	4.0
All-Red Time (s)	2.0	2.0	1.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0
Recall Mode	None	None	None		Max	Max
Act Effct Green (s)	12.3	12.3		54.5	40.2	40.2
Actuated g/C Ratio	0.15	0.15		0.67	0.50	0.50
v/c Ratio	0.51	0.38		0.41	0.42	0.29
Control Delay	38.9	9.3		5.1	14.7	2.7
Queue Delay	0.0	0.0		0.0	0.0	0.0
Total Delay	38.9	9.3		5.1	14.7	2.7
LOS	D	A		A	B	A
Approach Delay	24.3			5.1	11.5	
Approach LOS	C			A	B	
Queue Length 50th (ft)	65	0		59	121	0
Queue Length 95th (ft)	124	30		83	184	37

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
PM Existing



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	217			559	345	
Turn Bay Length (ft)						
Base Capacity (vph)	355	429		1967	1775	937
Starvation Cap Reductn	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.39	0.31		0.39	0.42	0.29

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 80.9

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 10.8

Intersection LOS: B

Intersection Capacity Utilization 63.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: New Park Ave. & Talcott Rd.



HCM Signalized Intersection Capacity Analysis
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
PM Existing

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	131	104	116	514	658	236
Future Volume (vph)	131	104	116	514	658	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.99	1.00	1.00
Satd. Flow (prot)	1787	1615		3550	3574	1615
Flt Permitted	0.95	1.00		0.71	1.00	1.00
Satd. Flow (perm)	1787	1615		2538	3574	1615
Peak-hour factor, PHF	0.94	0.77	0.88	0.81	0.88	0.88
Adj. Flow (vph)	139	135	132	635	748	268
RTOR Reduction (vph)	0	114	0	0	0	135
Lane Group Flow (vph)	139	21	0	767	748	133
Heavy Vehicles (%)	1%	0%	0%	1%	1%	0%
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases			2		2	
Actuated Green, G (s)	12.3	12.3		52.5	40.2	40.2
Effective Green, g (s)	12.3	12.3		52.5	40.2	40.2
Actuated g/C Ratio	0.15	0.15		0.65	0.50	0.50
Clearance Time (s)	6.0	6.0			6.0	6.0
Vehicle Extension (s)	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	272	245		1803	1778	803
v/s Ratio Prot	c0.08	0.01		c0.06	0.21	
v/s Ratio Perm				c0.21		0.08
v/c Ratio	0.51	0.08		0.43	0.42	0.17
Uniform Delay, d1	31.5	29.4		6.8	12.9	11.1
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.2	0.2		0.2	0.7	0.4
Delay (s)	33.6	29.6		7.1	13.6	11.6
Level of Service	C	C		A	B	B
Approach Delay (s)	31.7			7.1	13.1	
Approach LOS	C			A	B	
Intersection Summary						
HCM 2000 Control Delay		13.3		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.44				
Actuated Cycle Length (s)		80.8		Sum of lost time (s)		16.0
Intersection Capacity Utilization		63.2%		ICU Level of Service		B
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

PM Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	3	17	92	2	87	4	657	61	129	878	2
Future Volume (vph)	30	3	17	92	2	87	4	657	61	129	878	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	0	0	0	249	0	0
Storage Lanes	0	0	0	0	1	0	0	0	0	1	0	0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95
Fr _t		0.942				0.850		0.987			0.999	
Flt Protected		0.977			0.954					0.950		
Satd. Flow (prot)	0	1749	0	0	1745	1583	0	3550	0	1770	3606	0
Flt Permitted		0.778			0.822			0.945		0.290		
Satd. Flow (perm)	0	1392	0	0	1503	1583	0	3355	0	540	3606	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36				134		30			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		156			393			425			656	
Travel Time (s)		3.5			8.9			9.7			14.9	
Peak Hour Factor	0.75	0.38	0.47	0.66	0.50	0.65	0.50	0.86	0.80	0.90	0.78	0.50
Heavy Vehicles (%)	0%	0%	0%	4%	0%	2%	0%	0%	4%	2%	0%	0%
Adj. Flow (vph)	40	8	36	139	4	134	8	764	76	143	1126	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	84	0	0	143	134	0	848	0	143	1130	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4		4	2			2		
Detector Phase	4	4		4	4	4	2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		5.0	8.0	
Minimum Split (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		9.5	12.0	
Total Split (s)	10.5	10.5		10.5	10.5	10.5	45.0	45.0		10.0	45.0	
Total Split (%)	16.0%	16.0%		16.0%	16.0%	16.0%	68.7%	68.7%		15.3%	68.7%	
Maximum Green (s)	6.5	6.5		6.5	6.5	6.5	41.0	41.0		5.5	41.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.5	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		4.0			4.0	4.0		4.0		4.5	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None	None	None	None		None	None	
Act Effct Green (s)		7.0			7.0	7.0		28.4		31.7	28.4	
Actuated g/C Ratio		0.14			0.14	0.14		0.55		0.62	0.55	
v/c Ratio		0.38			0.69	0.40		0.45		0.30	0.57	
Control Delay		22.4			50.0	10.4		7.3		4.1	8.6	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		22.4			50.0	10.4		7.3		4.1	8.6	
LOS		C			D	B		A		A	A	
Approach Delay		22.4			30.8			7.3			8.1	

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

PM Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	14			45	0	72			10	109		
Queue Length 95th (ft)	14			59	17	97			19	122		
Internal Link Dist (ft)	76			313			345			576		
Turn Bay Length (ft)										249		
Base Capacity (vph)	222			206	332	2642			479	2833		
Starvation Cap Reductn	0			0	0	0			0	0		
Spillback Cap Reductn	0			0	0	0			0	0		
Storage Cap Reductn	0			0	0	0			0	0		
Reduced v/c Ratio	0.38			0.69	0.40	0.32			0.30	0.40		

Intersection Summary

Area Type: Other

Cycle Length: 65.5

Actuated Cycle Length: 51.3

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 10.8

Intersection LOS: B

Intersection Capacity Utilization 64.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: New Park Ave. & Colt Dr./Oakwood Ave.



HCM Signalized Intersection Capacity Analysis

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

PM Existing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	3	17	92	2	87	4	657	61	129	878	2
Future Volume (vph)	30	3	17	92	2	87	4	657	61	129	878	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0		4.0		4.5	4.0
Lane Util. Factor		1.00				1.00	1.00		0.95		1.00	0.95
Frt		0.94				1.00	0.85		0.99		1.00	1.00
Flt Protected		0.98				0.95	1.00		1.00		0.95	1.00
Satd. Flow (prot)		1748				1744	1583		3547		1770	3608
Flt Permitted		0.78				0.82	1.00		0.94		0.29	1.00
Satd. Flow (perm)		1392				1503	1583		3353		539	3608
Peak-hour factor, PHF	0.75	0.38	0.47	0.66	0.50	0.65	0.50	0.86	0.80	0.90	0.78	0.50
Adj. Flow (vph)	40	8	36	139	4	134	8	764	76	143	1126	4
RTOR Reduction (vph)	0	31	0	0	0	116	0	14	0	0	0	0
Lane Group Flow (vph)	0	53	0	0	143	18	0	834	0	143	1130	0
Heavy Vehicles (%)	0%	0%	0%	4%	0%	2%	0%	0%	4%	2%	0%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4				4			2		1	2
Permitted Phases	4			4			4	2			2	
Actuated Green, G (s)		7.0			7.0	7.0		28.4		32.3	28.4	
Effective Green, g (s)		7.0			7.0	7.0		28.4		32.3	28.4	
Actuated g/C Ratio		0.14				0.14	0.14		0.55		0.62	0.55
Clearance Time (s)		4.0			4.0	4.0		4.0		4.5	4.0	
Vehicle Extension (s)		4.0			4.0	4.0		4.0		3.0	4.0	
Lane Grp Cap (vph)	188			203	213		213	1838		428	1978	
v/s Ratio Prot										c0.03	c0.31	
v/s Ratio Perm		0.04			c0.10	0.01		0.25		0.18		
v/c Ratio		0.28			0.70	0.09		0.45		0.33	0.57	
Uniform Delay, d1		20.1			21.4	19.6		7.0		4.2	7.7	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		1.1			11.3	0.2		0.2		0.5	0.5	
Delay (s)		21.3			32.7	19.8		7.3		4.6	8.2	
Level of Service		C			C	B		A		A	A	
Approach Delay (s)		21.3			26.5			7.3			7.8	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		10.2			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.57										
Actuated Cycle Length (s)		51.8			Sum of lost time (s)			12.5				
Intersection Capacity Utilization		64.1%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

PM Existing

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑		↓		↑	↑↓		↑	↑↓	↑
Traffic Volume (vph)	263	8	221	11	4	5	172	517	10	4	633	293
Future Volume (vph)	263	8	221	11	4	5	172	517	10	4	633	293
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	315		0	200		0
Storage Lanes	1		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.968			0.997				0.850
Flt Protected	0.950	0.955			0.972		0.950			0.950		
Satd. Flow (prot)	1698	1708	1583	0	1788	0	1787	3564	0	1805	3610	1583
Flt Permitted	0.950	0.955			0.972		0.237			0.436		
Satd. Flow (perm)	1698	1708	1583	0	1788	0	446	3564	0	828	3610	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			240		5			1				318
Link Speed (mph)		30			30			30				30
Link Distance (ft)		189			135			656				374
Travel Time (s)		4.3			3.1			14.9				8.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	1%	1%	0%	0%	0%	2%
Adj. Flow (vph)	286	9	240	12	4	5	187	562	11	4	688	318
Shared Lane Traffic (%)	49%											
Lane Group Flow (vph)	146	149	240	0	21	0	187	573	0	4	688	318
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	8	8	8 1	7	7		1	6		5	2	2 8
Permitted Phases							6			2		
Detector Phase	8	8	8 1	7	7		1	6		5	2	2 8
Switch Phase												
Minimum Initial (s)	6.0	6.0		4.0	4.0		5.0	5.0		6.0		5.0
Minimum Split (s)	10.0	10.0		8.0	8.0		9.5	22.5		10.0		22.5
Total Split (s)	29.0	29.0		14.0	14.0		14.0	14.0		29.0		29.0
Total Split (%)	26.1%	26.1%		12.6%	12.6%		12.6%	12.6%		26.1%		26.1%
Maximum Green (s)	25.0	25.0		10.0	10.0		9.5	9.5		25.0		24.5
Yellow Time (s)	3.0	3.0		3.0	3.0		3.5	3.5		3.0		3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0		1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)	4.0	4.0		4.0			4.5	4.5		4.0		4.5
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		3.0
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)								7.0				7.0
Flash Dont Walk (s)								11.0				11.0
Pedestrian Calls (#/hr)								0				0
Act Effct Green (s)	10.8	10.8	25.1		6.5		30.7	29.4		23.3	16.4	30.8
Actuated g/C Ratio	0.21	0.21	0.48		0.12		0.59	0.56		0.45	0.31	0.59
v/c Ratio	0.42	0.42	0.27		0.09		0.37	0.29		0.01	0.61	0.30
Control Delay	24.2	24.3	3.0		24.4		8.8	8.8		7.5	18.5	1.3
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	29.5
Total Split (s)	25.0
Total Split (%)	23%
Maximum Green (s)	20.5
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	4.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

PM Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	24.2	24.3	3.0		24.4		8.8	8.8		7.5	18.5	1.3
LOS	C	C	A		C		A	A		A	B	A
Approach Delay		14.7			24.4			8.8			13.1	
Approach LOS		B			C			A			B	
Queue Length 50th (ft)	36	37	0		4		18	31		0	82	0
Queue Length 95th (ft)	115	116	39		27		82	146		5	196	14
Internal Link Dist (ft)		109			55			576			294	
Turn Bay Length (ft)							315				200	
Base Capacity (vph)	864	870	960		368		522	2010		1003	1802	1430
Starvation Cap Reductn	0	0	0		0		0	0		0	0	0
Spillback Cap Reductn	0	0	0		0		0	0		0	0	0
Storage Cap Reductn	0	0	0		0		0	0		0	0	0
Reduced v/c Ratio	0.17	0.17	0.25		0.06		0.36	0.29		0.00	0.38	0.22

Intersection Summary

Area Type: Other

Cycle Length: 111

Actuated Cycle Length: 52.2

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 12.2

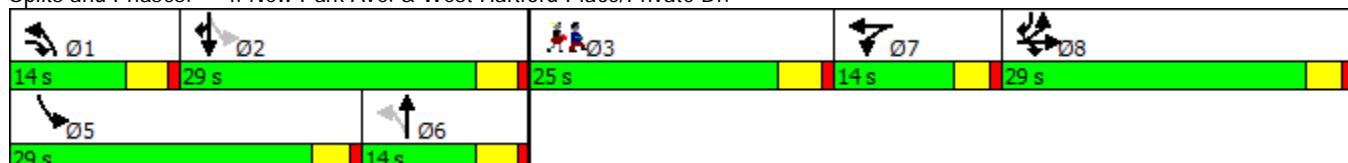
Intersection LOS: B

Intersection Capacity Utilization 49.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: New Park Ave. & West Hartford Place/Private Dr.



Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

PM Existing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑		↔		↑	↑↓		↑	↑↓	↑
Traffic Volume (vph)	263	8	221	11	4	5	172	517	10	4	633	293
Future Volume (vph)	263	8	221	11	4	5	172	517	10	4	633	293
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0			4.5	4.5		4.0	4.5
Lane Util. Factor	0.95	0.95	1.00		1.00			1.00	0.95		1.00	0.95
Frt	1.00	1.00	0.85		0.97			1.00	1.00		1.00	1.00
Flt Protected	0.95	0.96	1.00		0.97			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1698	1708	1583		1788			1787	3565		1805	3610
Flt Permitted	0.95	0.96	1.00		0.97			0.24	1.00		0.44	1.00
Satd. Flow (perm)	1698	1708	1583		1788			445	3565		829	3610
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	286	9	240	12	4	5	187	562	11	4	688	318
RTOR Reduction (vph)	0	0	140	0	5	0	0	0	0	0	0	150
Lane Group Flow (vph)	146	149	100	0	16	0	187	573	0	4	688	168
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	1%	1%	0%	0%	0%	2%
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	8	8	8 1	7	7		1	6		5	2	2 8
Permitted Phases							6			2		
Actuated Green, G (s)	10.8	10.8	24.4		1.0		34.2	29.4		20.9	20.1	30.9
Effective Green, g (s)	10.8	10.8	24.4		1.0		34.2	29.4		20.9	20.1	30.9
Actuated g/C Ratio	0.18	0.18	0.42		0.02		0.58	0.50		0.36	0.34	0.53
Clearance Time (s)	4.0	4.0			4.0		4.5	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	313	315	660		30		480	1791		309	1240	836
v/s Ratio Prot	0.09	c0.09	0.06		c0.01		c0.06	0.16		0.00	c0.19	0.11
v/s Ratio Perm							0.16			0.00		
v/c Ratio	0.47	0.47	0.15		0.54		0.39	0.32		0.01	0.55	0.20
Uniform Delay, d1	21.3	21.3	10.6		28.5		6.7	8.6		12.1	15.6	7.3
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	1.1	0.1		17.2		0.5	0.1		0.0	0.5	0.1
Delay (s)	22.4	22.4	10.7		45.7		7.2	8.7		12.1	16.1	7.4
Level of Service	C	C	B		D		A	A		B	B	A
Approach Delay (s)		17.2			45.7			8.4			13.4	
Approach LOS		B			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			12.9		HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			58.5		Sum of lost time (s)				21.5			
Intersection Capacity Utilization			49.8%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

PM Existing

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓		↑	↑	↑	↑	↑↓		↑	↑↓	
Traffic Volume (vph)	25	190	141	268	293	360	192	412	231	332	562	26
Future Volume (vph)	25	190	141	268	293	360	192	412	231	332	562	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	0		0	150		0	410		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.937				0.850		0.945			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3349	0	1752	1881	1615	1787	3365	0	1805	3509	0
Flt Permitted	0.552			0.260			0.399			0.950		
Satd. Flow (perm)	1049	3349	0	480	1881	1615	751	3365	0	1805	3509	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		130				404		93			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		282			376			408			1063	
Travel Time (s)		6.4			8.5			9.3			24.2	
Peak Hour Factor	0.69	0.85	0.86	0.91	0.84	0.89	0.79	0.84	0.81	0.89	0.94	0.59
Heavy Vehicles (%)	0%	1%	1%	3%	1%	0%	1%	1%	2%	0%	2%	0%
Adj. Flow (vph)	36	224	164	295	349	404	243	490	285	373	598	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	388	0	295	349	404	243	775	0	373	642	0
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6					
Detector Phase	7	4		3	8	8	1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	9.0		5.0	9.0	9.0	6.0	15.0		6.0	15.0	
Minimum Split (s)	9.5	14.0		9.5	14.0	14.0	10.5	20.1		10.5	20.1	
Total Split (s)	19.0	22.0		19.0	22.0	22.0	14.0	35.0		14.0	35.0	
Total Split (%)	15.8%	18.3%		15.8%	18.3%	18.3%	11.7%	29.2%		11.7%	29.2%	
Maximum Green (s)	14.5	17.0		15.0	17.0	17.0	10.0	29.9		10.0	29.9	
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.6		3.0	3.6	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes				Yes	
Vehicle Extension (s)	3.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)	25.4	17.8		46.1	37.7	72.6	49.3	29.9		30.9	42.5	
Actuated g/C Ratio	0.21	0.15		0.38	0.31	0.60	0.41	0.25		0.26	0.35	
v/c Ratio	0.14	0.64		0.69	0.59	0.36	0.52	0.85		0.80	0.52	
Control Delay	26.1	36.9		36.3	40.9	2.1	20.3	48.1		56.4	32.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	26.1	36.9		36.3	40.9	2.1	20.3	48.1		56.4	32.7	
LOS	C	D		D	D	A	C	D		E	C	
Approach Delay		36.0			24.7			41.5			41.4	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	9.5
Total Split (s)	30.0
Total Split (%)	25%
Maximum Green (s)	25.5
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

PM Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			C			D			D	
Queue Length 50th (ft)	17	98		167	239	0	94	270		272	201	
Queue Length 95th (ft)	29	137		239	312	41	128	315	#442	283		
Internal Link Dist (ft)		202			296			328			983	
Turn Bay Length (ft)	50						150			410		
Base Capacity (vph)	378	637		430	590	1136	466	908		464	1246	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.10	0.61		0.69	0.59	0.36	0.52	0.85		0.80	0.52	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 43.9 (37%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 35.7

Intersection LOS: D

Intersection Capacity Utilization 76.9%

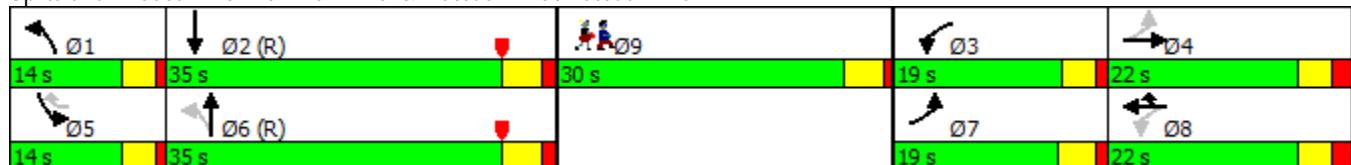
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: New Park Ave. & Flatbush Ave./Flatbush Ave.



Lane Group	Ø9
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

PM Existing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘		↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘	
Traffic Volume (vph)	25	190	141	268	293	360	192	412	231	332	562	26
Future Volume (vph)	25	190	141	268	293	360	192	412	231	332	562	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	0.94		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	3348		1752	1881	1615	1787	3365		1805	3508	
Flt Permitted	0.55	1.00		0.26	1.00	1.00	0.40	1.00		0.95	1.00	
Satd. Flow (perm)	1048	3348		480	1881	1615	750	3365		1805	3508	
Peak-hour factor, PHF	0.69	0.85	0.86	0.91	0.84	0.89	0.79	0.84	0.81	0.89	0.94	0.59
Adj. Flow (vph)	36	224	164	295	349	404	243	490	285	373	598	44
RTOR Reduction (vph)	0	109	0	0	0	173	0	71	0	0	4	0
Lane Group Flow (vph)	36	279	0	295	349	231	243	704	0	373	638	0
Heavy Vehicles (%)	0%	1%	1%	3%	1%	0%	1%	1%	2%	0%	2%	0%
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6					
Actuated Green, G (s)	24.3	19.6		46.9	37.7	68.6	46.4	28.1		30.9	40.7	
Effective Green, g (s)	24.3	19.6		46.9	37.7	68.6	46.4	28.1		30.9	40.7	
Actuated g/C Ratio	0.20	0.16		0.39	0.31	0.57	0.39	0.23		0.26	0.34	
Clearance Time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	241	546		434	590	990	448	787		464	1189	
v/s Ratio Prot	0.01	0.08		c0.13	0.19	0.07	0.08	c0.21		c0.21	0.18	
v/s Ratio Perm	0.02			c0.13		0.07	0.13					
v/c Ratio	0.15	0.51		0.68	0.59	0.23	0.54	0.89		0.80	0.54	
Uniform Delay, d1	38.9	45.8		27.6	34.7	12.7	26.1	44.5		41.7	32.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.3		3.3	1.1	0.0	0.7	14.8		9.2	1.7	
Delay (s)	39.2	46.2		30.9	35.7	12.7	26.8	59.3		50.9	33.8	
Level of Service	D	D		C	D	B	C	E		D	C	
Approach Delay (s)		45.6			25.5			51.5			40.1	
Approach LOS		D			C			D			D	
Intersection Summary												
HCM 2000 Control Delay		39.7										D
HCM 2000 Volume to Capacity ratio		0.84										
Actuated Cycle Length (s)		120.0										23.1
Intersection Capacity Utilization		76.9%										D
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

PM Existing

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Traffic Volume (vph)	16	0	643	2	2	0	461	377	3	0	436	0
Future Volume (vph)	16	0	643	2	2	0	461	377	3	0	436	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	80
Storage Lanes	1	2	0	0	0	0	0	0	0	0	0	1
Taper Length (ft)	25		25			25			25			
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Fr _t			0.850					0.999				
Flt Protected	0.950				0.976			0.975				
Satd. Flow (prot)	1805	0	2787	0	1854	0	0	3482	0	0	3574	1900
Flt Permitted	0.752				0.976			0.455				
Satd. Flow (perm)	1429	0	2787	0	1854	0	0	1625	0	0	3574	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			722					1				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		506			113			1063			446	
Travel Time (s)		11.5			2.6			24.2			10.1	
Peak Hour Factor	0.67	0.92	0.89	0.50	0.50	0.92	0.95	0.86	0.75	0.25	0.90	0.75
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	0%	0%	1%	0%
Adj. Flow (vph)	24	0	722	4	4	0	485	438	4	0	484	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	0	722	0	8	0	0	927	0	0	484	0
Turn Type	Perm	custom	Perm	NA		Perm	NA			NA	Prot	
Protected Phases		1 8		4			6			2	2	
Permitted Phases	8		4			6	1		2			
Detector Phase	8	1 8	4	4		6	6		2	2	2	
Switch Phase												
Minimum Initial (s)	10.0		5.0	5.0		15.0	15.0		15.0	15.0	15.0	
Minimum Split (s)	15.0		24.1	24.1		21.3	21.3		21.3	21.3	21.3	
Total Split (s)	30.0		21.0	21.0		68.3	68.3		36.0	36.0	36.0	
Total Split (%)	24.9%		17.5%	17.5%		56.8%	56.8%		29.9%	29.9%	29.9%	
Maximum Green (s)	25.0		14.9	14.9		62.0	62.0		29.7	29.7	29.7	
Yellow Time (s)	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0	
All-Red Time (s)	2.0		3.1	3.1		3.3	3.3		3.3	3.3	3.3	
Lost Time Adjust (s)	0.0		0.0			0.0			0.0	0.0	0.0	
Total Lost Time (s)	5.0		6.1			6.3			6.3	6.3	6.3	
Lead/Lag									Lag	Lag	Lag	
Lead-Lag Optimize?									Yes	Yes	Yes	
Vehicle Extension (s)	2.0		2.0	2.0		3.0	3.0		3.0	3.0	3.0	
Recall Mode	None		None	None		Max	Max		None	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	10.2		20.2		9.1		62.0			50.0		
Actuated g/C Ratio	0.12		0.24		0.11		0.74			0.60		
v/c Ratio	0.14		0.59		0.04		0.36			0.23		
Control Delay	34.9		4.4	33.8		4.2			8.1			
Queue Delay	0.0		0.0	0.0		0.0			0.0			

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Fr _t		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	12.0	22.0
Total Split (s)	32.0	22.0
Total Split (%)	27%	18%
Maximum Green (s)	25.0	18.0
Yellow Time (s)	3.0	4.0
All-Red Time (s)	4.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	2.0	3.0
Recall Mode	None	None
Walk Time (s)		5.0
Flash Dont Walk (s)		12.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

PM Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	34.9		4.4		33.8			4.2			8.1	
LOS	C		A		C			A			A	
Approach Delay		5.4			33.8			4.2			8.1	
Approach LOS		A			C			A			A	
Queue Length 50th (ft)	11		0		4			70			55	
Queue Length 95th (ft)	25		42		9			92			82	
Internal Link Dist (ft)		426			33			983			366	
Turn Bay Length (ft)												
Base Capacity (vph)	427		1715		530			2586			2139	
Starvation Cap Reductn	0		0		0			0			0	
Spillback Cap Reductn	0		0		0			0			0	
Storage Cap Reductn	0		0		0			0			0	
Reduced v/c Ratio	0.06		0.42		0.02			0.36			0.23	

Intersection Summary

Area Type: Other

Cycle Length: 120.3

Actuated Cycle Length: 83.5

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 5.6

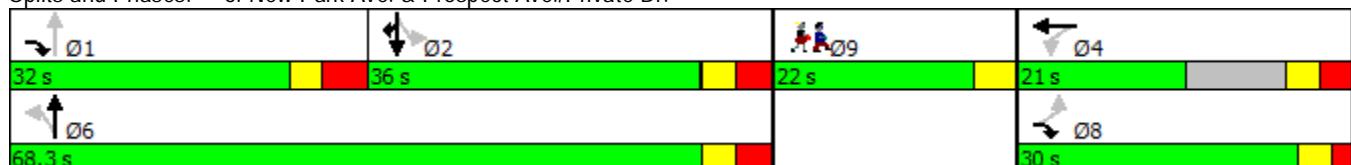
Intersection LOS: A

Intersection Capacity Utilization 57.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 6: New Park Ave. & Prospect Ave./Private Dr.



Lane Group	Ø1	Ø9
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

PM Existing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↓			↑↑			↑↑	↑
Traffic Volume (vph)	16	0	643	2	2	0	461	377	3	0	436	0
Future Volume (vph)	16	0	643	2	2	0	461	377	3	0	436	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			7.0		6.1			6.3			6.3
Lane Util. Factor	1.00			0.88		1.00			0.95			0.95
Frt	1.00			0.85		1.00			1.00			1.00
Flt Protected	0.95			1.00		0.98			0.97			1.00
Satd. Flow (prot)	1805			2787		1854			3481			3574
Flt Permitted	0.75			1.00		0.98			0.46			1.00
Satd. Flow (perm)	1430			2787		1854			1625			3574
Peak-hour factor, PHF	0.67	0.92	0.89	0.50	0.50	0.92	0.95	0.86	0.75	0.25	0.90	0.75
Adj. Flow (vph)	24	0	722	4	4	0	485	438	4	0	484	0
RTOR Reduction (vph)	0	0	591	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	24	0	131	0	8	0	0	927	0	0	484	0
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	0%	0%	1%	0%
Turn Type	Perm		custom	Perm	NA		Perm	NA			NA	Prot
Protected Phases			1 8		4			6			2	2
Permitted Phases	8			4			6	1		2		
Actuated Green, G (s)	10.2		20.2		9.1			62.0			50.0	
Effective Green, g (s)	10.2		15.2		9.1			62.0			50.0	
Actuated g/C Ratio	0.12		0.18		0.11			0.74			0.60	
Clearance Time (s)	5.0				6.1			6.3			6.3	
Vehicle Extension (s)	2.0				2.0			3.0			3.0	
Lane Grp Cap (vph)	174		507		202			2584			2140	
v/s Ratio Prot			c0.05					c0.27			0.14	
v/s Ratio Perm	0.02				0.00							
v/c Ratio	0.14		0.26		0.04			0.36			0.23	
Uniform Delay, d1	32.7		29.3		33.3			3.8			7.8	
Progression Factor	1.00		1.00		1.00			1.00			1.00	
Incremental Delay, d2	0.1		0.1		0.0			0.0			0.1	
Delay (s)	32.9		29.4		33.3			3.8			7.8	
Level of Service	C		C		C			A			A	
Approach Delay (s)		29.5			33.3			3.8			7.8	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		13.7			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.41										
Actuated Cycle Length (s)		83.5			Sum of lost time (s)			23.4				
Intersection Capacity Utilization		57.8%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

Appendix D

Intersection Capacity Analysis Worksheets
2030 Projected Traffic Volumes
Saturday Peak Hour

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

Saturday Existing

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑	↑	
Traffic Volume (vph)	277	623	0	1	695	382	0	0	0	326	2	261
Future Volume (vph)	277	623	0	1	695	382	0	0	0	326	2	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	12	12	12	12	12	12	11	12	11
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850					0.869	
Flt Protected	0.950									0.950	0.994	
Satd. Flow (prot)	1668	3336	0	0	3565	1599	0	1900	0	1625	1524	0
Flt Permitted	0.181				0.951					0.950	0.994	
Satd. Flow (perm)	318	3336	0	0	3391	1599	0	1900	0	1625	1524	0
Right Turn on Red			Yes			No			Yes		Yes	
Satd. Flow (RTOR)											287	
Link Speed (mph)	30				30			30			30	
Link Distance (ft)	386				245			138			2131	
Travel Time (s)	8.8				5.6			3.1			48.4	
Peak Hour Factor	0.92	0.95	0.75	0.25	0.91	0.86	0.25	0.25	0.25	0.89	0.50	0.91
Heavy Vehicles (%)	1%	1%	67%	50%	1%	1%	0%	0%	33%	2%	100%	1%
Adj. Flow (vph)	301	656	0	4	764	444	0	0	0	366	4	287
Shared Lane Traffic (%)										10%		
Lane Group Flow (vph)	301	656	0	0	768	444	0	0	0	329	328	0
Turn Type	D.P+P	NA		Perm	NA	pt+ov				Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2			2								
Detector Phase	1	1 2		2	2	2 4	5	5		4	4	
Switch Phase												
Minimum Initial (s)	5.0				15.0	15.0		5.0	5.0		5.0	5.0
Minimum Split (s)	9.0				22.9	22.9		13.0	13.0		13.0	13.0
Total Split (s)	10.0				35.0	35.0		10.0	10.0		35.0	35.0
Total Split (%)	8.9%				31.3%	31.3%		8.9%	8.9%		31.3%	31.3%
Maximum Green (s)	6.0				27.1	27.1		2.0	2.0		27.0	27.0
Yellow Time (s)	3.0				3.0	3.0		3.0	3.0		3.0	3.0
All-Red Time (s)	1.0				4.9	4.9		5.0	5.0		5.0	5.0
Lost Time Adjust (s)	0.0				0.0			0.0			0.0	0.0
Total Lost Time (s)	4.0				7.9			8.0			8.0	8.0
Lead/Lag	Lead				Lag	Lag				Lag	Lag	
Lead-Lag Optimize?	Yes				Yes	Yes				Yes	Yes	
Vehicle Extension (s)	1.5				2.5	2.5		1.5	1.5		1.5	1.5
Recall Mode	None				C-Max	C-Max		None	None		None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	67.3	71.3			31.2	67.9				28.7	28.7	
Actuated g/C Ratio	0.60	0.64			0.28	0.61				0.26	0.26	
v/c Ratio	0.52	0.31			0.81	0.46				0.79	0.54	
Control Delay	18.2	10.5			45.9	13.1				52.2	9.1	
Queue Delay	0.0	0.0			0.0	0.0				0.0	0.0	
Total Delay	18.2	10.5			45.9	13.1				52.2	9.1	
LOS	B	B			D	B				D	A	

Lanes, Volumes, Timings
1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor
Saturday Existing

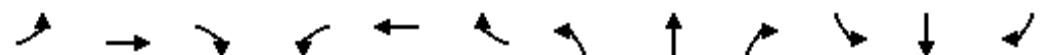
Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	22.0
Total Split (%)	20%
Maximum Green (s)	18.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	19.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

Saturday Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		12.9			33.9						30.7	
Approach LOS			B			C						C
Queue Length 50th (ft)	93	104			256	144				232	24	
Queue Length 95th (ft)	209	166			#404	199				308	0	
Internal Link Dist (ft)		306			165			58			2051	
Turn Bay Length (ft)												
Base Capacity (vph)	578	2123			944	994				442	624	
Starvation Cap Reductn	0	0			0	0				0	0	
Spillback Cap Reductn	0	0			0	0				0	0	
Storage Cap Reductn	0	0			0	0				0	0	
Reduced v/c Ratio	0.52	0.31			0.81	0.45				0.74	0.53	

Intersection Summary

Area Type: Other

Cycle Length: 112

Actuated Cycle Length: 112

Offset: 3.6 (3%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 26.1

Intersection LOS: C

Intersection Capacity Utilization 70.1%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: New Park Ave. & New Britain Ave.



Lane Group	Ø3
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

Saturday Existing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑↑		↑	↑	
Traffic Volume (vph)	277	623	0	1	695	382	0	0	0	326	2	261
Future Volume (vph)	277	623	0	1	695	382	0	0	0	326	2	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12	12	12	12	11	12	11
Total Lost time (s)	4.0	4.0			7.9	7.9				8.0	8.0	
Lane Util. Factor	1.00	0.95			0.95	1.00				0.95	0.95	
Frt	1.00	1.00			1.00	0.85				1.00	0.87	
Flt Protected	0.95	1.00			1.00	1.00				0.95	0.99	
Satd. Flow (prot)	1668	3336			3564	1599				1625	1524	
Flt Permitted	0.18	1.00			0.95	1.00				0.95	0.99	
Satd. Flow (perm)	319	3336			3390	1599				1625	1524	
Peak-hour factor, PHF	0.92	0.95	0.75	0.25	0.91	0.86	0.25	0.25	0.25	0.89	0.50	0.91
Adj. Flow (vph)	301	656	0	4	764	444	0	0	0	366	4	287
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	213	0
Lane Group Flow (vph)	301	656	0	0	768	444	0	0	0	329	115	0
Heavy Vehicles (%)	1%	1%	67%	50%	1%	1%	0%	0%	33%	2%	100%	1%
Turn Type	D.P+P	NA		Perm	NA	pt+ov				Split	NA	
Protected Phases	1	1	2		2	2	4	5	5	4	4	
Permitted Phases	2			2								
Actuated Green, G (s)	63.4	67.4			31.2	67.8				28.7	28.7	
Effective Green, g (s)	63.4	67.4			31.2	67.8				28.7	28.7	
Actuated g/C Ratio	0.57	0.60			0.28	0.61				0.26	0.26	
Clearance Time (s)	4.0				7.9					8.0	8.0	
Vehicle Extension (s)	1.5				2.5					1.5	1.5	
Lane Grp Cap (vph)	568	2007			944	967				416	390	
v/s Ratio Prot	c0.15	0.20				0.28				c0.20	0.08	
v/s Ratio Perm	0.15				c0.23							
v/c Ratio	0.53	0.33			0.81	0.46				0.79	0.29	
Uniform Delay, d1	14.9	11.1			37.7	12.1				38.9	33.5	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	0.4	0.0			7.6	0.1				9.2	0.2	
Delay (s)	15.3	11.1			45.3	12.2				48.1	33.7	
Level of Service	B	B			D	B				D	C	
Approach Delay (s)		12.4			33.2			0.0			40.9	
Approach LOS		B			C			A			D	
Intersection Summary												
HCM 2000 Control Delay		27.9			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.81										
Actuated Cycle Length (s)		112.0			Sum of lost time (s)			31.9				
Intersection Capacity Utilization		70.1%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
Saturday Existing

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	150	87	81	591	579	212
Future Volume (vph)	150	87	81	591	579	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	1.00
Frt			0.850			0.850
Flt Protected	0.950			0.994		
Satd. Flow (prot)	1787	1615	0	3557	3574	1615
Flt Permitted	0.950			0.814		
Satd. Flow (perm)	1787	1615	0	2913	3574	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		113				241
Link Speed (mph)	30			30	30	
Link Distance (ft)	297			639	425	
Travel Time (s)	6.8			14.5	9.7	
Peak Hour Factor	0.94	0.77	0.88	0.81	0.88	0.88
Heavy Vehicles (%)	1%	0%	0%	1%	1%	0%
Adj. Flow (vph)	160	113	92	730	658	241
Shared Lane Traffic (%)						
Lane Group Flow (vph)	160	113	0	822	658	241
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases				2		2
Detector Phase	4	4	1	1 2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		30.0	30.0
Minimum Split (s)	14.0	14.0	12.0		36.0	36.0
Total Split (s)	22.0	22.0	19.0		46.0	46.0
Total Split (%)	25.3%	25.3%	21.8%		52.9%	52.9%
Maximum Green (s)	16.0	16.0	15.0		40.0	40.0
Yellow Time (s)	4.0	4.0	3.0		4.0	4.0
All-Red Time (s)	2.0	2.0	1.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0
Recall Mode	None	None	None		Max	Max
Act Effct Green (s)	13.1	13.1		54.9	40.2	40.2
Actuated g/C Ratio	0.16	0.16		0.67	0.49	0.49
v/c Ratio	0.56	0.32		0.40	0.38	0.26
Control Delay	40.3	9.2		5.3	14.7	2.8
Queue Delay	0.0	0.0		0.0	0.0	0.0
Total Delay	40.3	9.2		5.3	14.7	2.8
LOS	D	A		A	B	A
Approach Delay	27.4			5.3	11.5	
Approach LOS	C			A	B	
Queue Length 50th (ft)	77	0		69	109	0
Queue Length 95th (ft)	141	28		90	158	35

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
Saturday Existing



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	217			559	345	
Turn Bay Length (ft)						
Base Capacity (vph)	349	407		2133	1749	913
Starvation Cap Reductn	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.46	0.28		0.39	0.38	0.26

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 82.1

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 11.1

Intersection LOS: B

Intersection Capacity Utilization 65.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: New Park Ave. & Talcott Rd.



HCM Signalized Intersection Capacity Analysis
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
Saturday Existing

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	150	87	81	591	579	212
Future Volume (vph)	150	87	81	591	579	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.99	1.00	1.00
Satd. Flow (prot)	1787	1615		3558	3574	1615
Flt Permitted	0.95	1.00		0.81	1.00	1.00
Satd. Flow (perm)	1787	1615		2914	3574	1615
Peak-hour factor, PHF	0.94	0.77	0.88	0.81	0.88	0.88
Adj. Flow (vph)	160	113	92	730	658	241
RTOR Reduction (vph)	0	95	0	0	0	123
Lane Group Flow (vph)	160	18	0	822	658	118
Heavy Vehicles (%)	1%	0%	0%	1%	1%	0%
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases			2		2	
Actuated Green, G (s)	13.1	13.1		52.9	40.2	40.2
Effective Green, g (s)	13.1	13.1		52.9	40.2	40.2
Actuated g/C Ratio	0.16	0.16		0.65	0.49	0.49
Clearance Time (s)	6.0	6.0			6.0	6.0
Vehicle Extension (s)	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	285	258		1979	1752	791
v/s Ratio Prot	c0.09	0.01		c0.06	0.18	
v/s Ratio Perm				c0.20		0.07
v/c Ratio	0.56	0.07		0.42	0.38	0.15
Uniform Delay, d1	31.8	29.3		7.1	13.1	11.5
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.1	0.2		0.2	0.6	0.4
Delay (s)	34.9	29.4		7.2	13.7	11.9
Level of Service	C	C		A	B	B
Approach Delay (s)	32.6			7.2	13.2	
Approach LOS	C			A	B	
Intersection Summary						
HCM 2000 Control Delay		13.4		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.44				
Actuated Cycle Length (s)		82.0		Sum of lost time (s)		16.0
Intersection Capacity Utilization		65.3%		ICU Level of Service		C
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

Saturday Existing

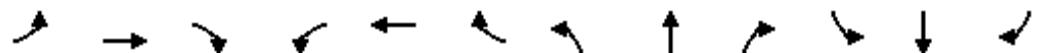
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	48	0	121	1	713	48	139	847	3
Future Volume (vph)	3	0	2	48	0	121	1	713	48	139	847	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	249		0
Storage Lanes	0		0	0		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95
Fr _t							0.850					0.999
Flt Protected						0.950					0.950	
Satd. Flow (prot)	0	1728	0	0	1736	1583	0	3564	0	1770	3606	0
Flt Permitted						0.870			0.954		0.283	
Satd. Flow (perm)	0	1424	0	0	1589	1583	0	3400	0	527	3606	0
Right Turn on Red				Yes			Yes			Yes		Yes
Satd. Flow (RTOR)		92				186			22		2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		156			393			425			656	
Travel Time (s)		3.5			8.9			9.7			14.9	
Peak Hour Factor	0.75	0.38	0.47	0.66	0.50	0.65	0.50	0.86	0.80	0.90	0.78	0.50
Heavy Vehicles (%)	0%	0%	0%	4%	0%	2%	0%	0%	4%	2%	0%	0%
Adj. Flow (vph)	4	0	4	73	0	186	2	829	60	154	1086	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	8	0	0	73	186	0	891	0	154	1092	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4		4	2			2		
Detector Phase	4	4		4	4	4	2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		5.0	8.0	
Minimum Split (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		9.5	12.0	
Total Split (s)	10.5	10.5		10.5	10.5	10.5	45.0	45.0		10.0	45.0	
Total Split (%)	16.0%	16.0%		16.0%	16.0%	16.0%	68.7%	68.7%		15.3%	68.7%	
Maximum Green (s)	6.5	6.5		6.5	6.5	6.5	41.0	41.0		5.5	41.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.5	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		4.0			4.0	4.0		4.0		4.5	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None	None	None	None		None	None	
Act Effct Green (s)		8.0			8.0	8.0		31.7		32.7	31.7	
Actuated g/C Ratio		0.16			0.16	0.16		0.65		0.67	0.65	
v/c Ratio		0.03			0.28	0.45		0.40		0.30	0.47	
Control Delay		0.2			28.3	9.3		6.8		3.9	7.4	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		0.2			28.3	9.3		6.8		3.9	7.4	
LOS		A			C	A		A		A	A	
Approach Delay		0.2			14.7			6.8		7.0		

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

Saturday Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS					A		B		A			A
Queue Length 50th (ft)		0				21	0		78		11	104
Queue Length 95th (ft)		0				35	16		103		20	116
Internal Link Dist (ft)		76				313			345			576
Turn Bay Length (ft)												249
Base Capacity (vph)		310				260	415		2691		527	2849
Starvation Cap Reductn		0				0	0		0		0	0
Spillback Cap Reductn		0				0	0		0		0	0
Storage Cap Reductn		0				0	0		0		0	0
Reduced v/c Ratio		0.03				0.28	0.45		0.33		0.29	0.38

Intersection Summary

Area Type: Other

Cycle Length: 65.5

Actuated Cycle Length: 48.8

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 7.7

Intersection LOS: A

Intersection Capacity Utilization 61.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: New Park Ave. & Colt Dr./Oakwood Ave.



HCM Signalized Intersection Capacity Analysis

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

Saturday Existing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	48	0	121	1	713	48	139	847	3
Future Volume (vph)	3	0	2	48	0	121	1	713	48	139	847	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0		4.0		4.5	4.0
Lane Util. Factor		1.00				1.00	1.00		0.95		1.00	0.95
Frt		0.93				1.00	0.85		0.99		1.00	1.00
Flt Protected		0.98				0.95	1.00		1.00		0.95	1.00
Satd. Flow (prot)		1729				1736	1583		3564		1770	3607
Flt Permitted		0.80				0.87	1.00		0.95		0.28	1.00
Satd. Flow (perm)		1425				1589	1583		3398		528	3607
Peak-hour factor, PHF	0.75	0.38	0.47	0.66	0.50	0.65	0.50	0.86	0.80	0.90	0.78	0.50
Adj. Flow (vph)	4	0	4	73	0	186	2	829	60	154	1086	6
RTOR Reduction (vph)	0	7	0	0	0	169	0	9	0	0	1	0
Lane Group Flow (vph)	0	1	0	0	73	17	0	882	0	154	1091	0
Heavy Vehicles (%)	0%	0%	0%	4%	0%	2%	0%	0%	4%	2%	0%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4				4			2		1	2
Permitted Phases	4			4			4	2			2	
Actuated Green, G (s)		4.6			4.6	4.6		29.6		33.3	29.6	
Effective Green, g (s)		4.6			4.6	4.6		29.6		33.3	29.6	
Actuated g/C Ratio		0.09			0.09	0.09		0.59		0.66	0.59	
Clearance Time (s)		4.0			4.0	4.0		4.0		4.5	4.0	
Vehicle Extension (s)		4.0			4.0	4.0		4.0		3.0	4.0	
Lane Grp Cap (vph)	130			145	144			1995		440	2118	
v/s Ratio Prot										c0.03	c0.30	
v/s Ratio Perm		0.00			c0.05	0.01		0.26		0.21		
v/c Ratio		0.01			0.50	0.12		0.44		0.35	0.52	
Uniform Delay, d1		20.8			21.8	21.0		5.8		3.3	6.2	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.0			3.7	0.5		0.2		0.5	0.3	
Delay (s)		20.8			25.5	21.5		6.0		3.8	6.4	
Level of Service		C			C	C		A		A	A	
Approach Delay (s)		20.8			22.7			6.0			6.1	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		7.9			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.50										
Actuated Cycle Length (s)		50.4			Sum of lost time (s)			12.5				
Intersection Capacity Utilization		61.4%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

Saturday Existing

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑		↓		↑	↑↓		↑	↑↓	↑
Traffic Volume (vph)	347	7	333	10	3	6	289	553	19	11	448	396
Future Volume (vph)	347	7	333	10	3	6	289	553	19	11	448	396
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	315		0	200		0
Storage Lanes	1		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.955			0.995				0.850
Flt Protected	0.950	0.954			0.974		0.950			0.950		
Satd. Flow (prot)	1698	1706	1583	0	1767	0	1787	3558	0	1805	3610	1583
Flt Permitted	0.950	0.954			0.974		0.316			0.416		
Satd. Flow (perm)	1698	1706	1583	0	1767	0	594	3558	0	790	3610	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			362			7			2			430
Link Speed (mph)			30			30			30			30
Link Distance (ft)			189			135			656			374
Travel Time (s)			4.3			3.1			14.9			8.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	1%	1%	0%	0%	0%	2%
Adj. Flow (vph)	377	8	362	11	3	7	314	601	21	12	487	430
Shared Lane Traffic (%)	49%											
Lane Group Flow (vph)	192	193	362	0	21	0	314	622	0	12	487	430
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	8	8	8 1	7	7		1	6		5	2	2 8
Permitted Phases							6			2		
Detector Phase	8	8	8 1	7	7		1	6		5	2	2 8
Switch Phase												
Minimum Initial (s)	6.0	6.0		4.0	4.0		5.0	5.0		6.0	5.0	
Minimum Split (s)	10.0	10.0		8.0	8.0		9.5	22.5		10.0	22.5	
Total Split (s)	29.0	29.0		14.0	14.0		14.0	14.0		29.0	29.0	
Total Split (%)	26.1%	26.1%		12.6%	12.6%		12.6%	12.6%		26.1%	26.1%	
Maximum Green (s)	25.0	25.0		10.0	10.0		9.5	9.5		25.0	24.5	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.5	3.5		3.0	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0			4.5	4.5		4.0	4.5	
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								11.0			11.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	13.7	13.7	28.6		6.4		27.3	26.0		19.5	12.5	29.8
Actuated g/C Ratio	0.26	0.26	0.55		0.12		0.53	0.50		0.38	0.24	0.58
v/c Ratio	0.43	0.43	0.35		0.09		0.57	0.35		0.03	0.56	0.39
Control Delay	20.2	20.2	2.3		23.1		16.0	11.7		9.6	21.1	1.6
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	29.5
Total Split (s)	25.0
Total Split (%)	23%
Maximum Green (s)	20.5
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	4.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

Saturday Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	20.2	20.2	2.3		23.1		16.0	11.7		9.6	21.1	1.6
LOS	C	C	A		C		B	B		A	C	A
Approach Delay		11.5			23.1			13.1			12.0	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)	45	45	0		4		41	42		1	61	0
Queue Length 95th (ft)	133	134	41		27		#173	184		12	152	16
Internal Link Dist (ft)		109			55			576			294	
Turn Bay Length (ft)							315				200	
Base Capacity (vph)	876	880	1063		370		547	1789		969	1825	1399
Starvation Cap Reductn	0	0	0		0		0	0		0	0	0
Spillback Cap Reductn	0	0	0		0		0	0		0	0	0
Storage Cap Reductn	0	0	0		0		0	0		0	0	0
Reduced v/c Ratio	0.22	0.22	0.34		0.06		0.57	0.35		0.01	0.27	0.31

Intersection Summary

Area Type: Other

Cycle Length: 111

Actuated Cycle Length: 51.7

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 12.4

Intersection LOS: B

Intersection Capacity Utilization 55.6%

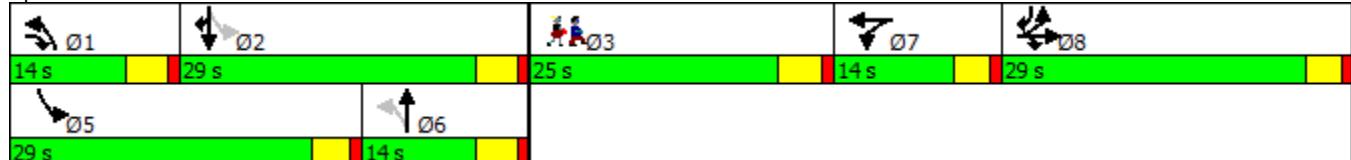
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: New Park Ave. & West Hartford Place/Private Dr.



Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor
Saturday Existing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑		↔		↑	↑↓		↑	↑↓	↑
Traffic Volume (vph)	347	7	333	10	3	6	289	553	19	11	448	396
Future Volume (vph)	347	7	333	10	3	6	289	553	19	11	448	396
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		4.5	4.5		4.0	4.5	4.5
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85		0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1698	1706	1583		1768		1787	3557		1805	3610	1583
Flt Permitted	0.95	0.95	1.00		0.97		0.32	1.00		0.42	1.00	1.00
Satd. Flow (perm)	1698	1706	1583		1768		595	3557		791	3610	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	377	8	362	11	3	7	314	601	21	12	487	430
RTOR Reduction (vph)	0	0	189	0	7	0	0	1	0	0	0	208
Lane Group Flow (vph)	192	193	173	0	14	0	314	621	0	12	487	222
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	1%	1%	0%	0%	0%	2%
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	8	8	8 1	7	7		1	6		5	2	2 8
Permitted Phases							6			2		
Actuated Green, G (s)	13.7	13.7	27.8		1.0		30.9	26.0		17.2	16.3	30.0
Effective Green, g (s)	13.7	13.7	27.8		1.0		30.9	26.0		17.2	16.3	30.0
Actuated g/C Ratio	0.24	0.24	0.48		0.02		0.53	0.45		0.30	0.28	0.52
Clearance Time (s)	4.0	4.0			4.0		4.5	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	400	402	757		30		523	1591		249	1012	817
v/s Ratio Prot	0.11	c0.11	0.11		c0.01		c0.10	0.17		0.00	0.13	0.14
v/s Ratio Perm							c0.21			0.01		
v/c Ratio	0.48	0.48	0.23		0.47		0.60	0.39		0.05	0.48	0.27
Uniform Delay, d1	19.1	19.1	8.9		28.3		8.4	10.7		14.5	17.4	7.9
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.9	0.9	0.2		11.2		1.9	0.2		0.1	0.4	0.2
Delay (s)	20.0	20.0	9.0		39.5		10.3	10.9		14.6	17.7	8.1
Level of Service	C	C	A		D		B	B		B	B	A
Approach Delay (s)		14.7			39.5			10.7			13.2	
Approach LOS		B			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			13.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			58.1				Sum of lost time (s)			21.5		
Intersection Capacity Utilization			55.6%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

Saturday Existing

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓		↑	↑	↑	↑	↑↓		↑	↑↓	
Traffic Volume (vph)	22	129	189	308	177	352	180	452	265	322	508	15
Future Volume (vph)	22	129	189	308	177	352	180	452	265	322	508	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	0		0	150		0	410		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.911				0.850		0.943			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3256	0	1752	1881	1615	1787	3358	0	1805	3517	0
Flt Permitted	0.626			0.278			0.358			0.950		
Satd. Flow (perm)	1189	3256	0	513	1881	1615	673	3358	0	1805	3517	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		220				396		102			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		282			376			408			1063	
Travel Time (s)		6.4			8.5			9.3			24.2	
Peak Hour Factor	0.69	0.85	0.86	0.91	0.84	0.89	0.79	0.84	0.81	0.89	0.94	0.59
Heavy Vehicles (%)	0%	1%	1%	3%	1%	0%	1%	1%	2%	0%	2%	0%
Adj. Flow (vph)	32	152	220	338	211	396	228	538	327	362	540	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	372	0	338	211	396	228	865	0	362	565	0
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6					
Detector Phase	7	4		3	8	8	1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	9.0		5.0	9.0	9.0	6.0	15.0		6.0	15.0	
Minimum Split (s)	9.5	14.0		9.5	14.0	14.0	10.5	20.1		10.5	20.1	
Total Split (s)	19.0	22.0		19.0	22.0	22.0	14.0	35.0		14.0	35.0	
Total Split (%)	15.8%	18.3%		15.8%	18.3%	18.3%	11.7%	29.2%		11.7%	29.2%	
Maximum Green (s)	14.5	17.0		15.0	17.0	17.0	10.0	29.9		10.0	29.9	
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.6		3.0	3.6	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes				Yes	
Vehicle Extension (s)	3.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Act Effct Green (s)	16.9	9.8		29.9	24.2	38.2	40.8	29.9		10.0	30.2	
Actuated g/C Ratio	0.20	0.12		0.36	0.29	0.46	0.49	0.36		0.12	0.36	
v/c Ratio	0.11	0.64		0.83	0.39	0.41	0.49	0.68		1.66	0.44	
Control Delay	19.3	19.6		40.2	27.9	3.5	14.3	22.9		345.7	21.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	19.3	19.6		40.2	27.9	3.5	14.3	22.9		345.7	21.4	
LOS	B	B		D	C	A	B	C		F	C	
Approach Delay		19.6			22.1			21.1			148.1	

Lanes, Volumes, Timings
5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor
Saturday Existing

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	9.5
Total Split (s)	30.0
Total Split (%)	25%
Maximum Green (s)	25.5
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

Saturday Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			C			C			F	
Queue Length 50th (ft)	11	38		137	79	0	56	170		-273	112	
Queue Length 95th (ft)	22	72		#249	154	52	88	224		#449	167	
Internal Link Dist (ft)		202			296			328			983	
Turn Bay Length (ft)	50						150			410		
Base Capacity (vph)	464	843		409	548	957	467	1277		218	1282	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.07	0.44		0.83	0.39	0.41	0.49	0.68		1.66	0.44	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 82.9

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.66

Intersection Signal Delay: 56.1

Intersection LOS: E

Intersection Capacity Utilization 80.6%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: New Park Ave. & Flatbush Ave./Flatbush Ave.



Lane Group	Ø9
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

Saturday Existing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑	↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	22	129	189	308	177	352	180	452	265	322	508	15
Future Volume (vph)	22	129	189	308	177	352	180	452	265	322	508	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	0.94		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	3257		1752	1881	1615	1787	3359		1805	3519	
Flt Permitted	0.63	1.00		0.28	1.00	1.00	0.36	1.00		0.95	1.00	
Satd. Flow (perm)	1189	3257		512	1881	1615	674	3359		1805	3519	
Peak-hour factor, PHF	0.69	0.85	0.86	0.91	0.84	0.89	0.79	0.84	0.81	0.89	0.94	0.59
Adj. Flow (vph)	32	152	220	338	211	396	228	538	327	362	540	25
RTOR Reduction (vph)	0	188	0	0	0	238	0	66	0	0	3	0
Lane Group Flow (vph)	32	184	0	338	211	158	228	799	0	362	562	0
Heavy Vehicles (%)	0%	1%	1%	3%	1%	0%	1%	1%	2%	0%	2%	0%
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6					
Actuated Green, G (s)	15.5	12.6		31.6	24.2	34.2	39.6	29.9		10.0	30.2	
Effective Green, g (s)	15.5	12.6		31.6	24.2	34.2	39.6	29.9		10.0	30.2	
Actuated g/C Ratio	0.18	0.15		0.37	0.28	0.40	0.46	0.35		0.12	0.35	
Clearance Time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	236	479		406	531	739	437	1173		210	1241	
v/s Ratio Prot	0.00	0.06		c0.15	0.11	0.06	0.06	c0.24		c0.20	0.16	
v/s Ratio Perm	0.02			c0.16		0.04	0.18					
v/c Ratio	0.14	0.38		0.83	0.40	0.21	0.52	0.68		1.72	0.45	
Uniform Delay, d1	29.2	33.0		21.7	24.8	16.9	14.4	23.8		37.8	21.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.2		13.0	0.2	0.1	0.5	3.2		345.0	1.2	
Delay (s)	29.5	33.2		34.7	25.0	16.9	14.9	27.0		382.8	22.5	
Level of Service	C	C		C	C	B	B	C		F	C	
Approach Delay (s)		32.9			25.1			24.5			163.2	
Approach LOS		C			C			C			F	
Intersection Summary												
HCM 2000 Control Delay		63.8								E		
HCM 2000 Volume to Capacity ratio		1.01										
Actuated Cycle Length (s)		85.6								23.1		
Intersection Capacity Utilization		80.6%								D		
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

Saturday Existing

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	0	2	1	0	1	410	381	0	2	364	8
Traffic Volume (vph)	12	0	482	1	0	1	410	381	0	2	364	8
Future Volume (vph)	12	0	482	1	0	1	410	381	0	2	364	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0		0	0	0	0	0	0	0	80
Storage Lanes	1		2	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Frt			0.850		0.955							0.850
Flt Protected	0.950				0.968			0.976			0.999	
Satd. Flow (prot)	1805	0	2787	0	1756	0	0	3488	0	0	3571	1615
Flt Permitted	0.756				0.968			0.455			0.938	
Satd. Flow (perm)	1436	0	2787	0	1756	0	0	1626	0	0	3353	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			542		130							128
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		506			113			1063			446	
Travel Time (s)		11.5			2.6			24.2			10.1	
Peak Hour Factor	0.67	0.92	0.89	0.50	0.50	0.92	0.95	0.86	0.75	0.25	0.90	0.75
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	0%	0%	1%	0%
Adj. Flow (vph)	18	0	542	2	0	1	432	443	0	8	404	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	0	542	0	3	0	0	875	0	0	412	11
Turn Type	Perm	custom	Perm	NA		Perm	NA		Perm	NA	Prot	
Protected Phases		1 8		4			6			2		2
Permitted Phases	8			4			6	1		2		
Detector Phase	8	1 8	4	4		6	6		2	2		2
Switch Phase												
Minimum Initial (s)	10.0			5.0	5.0		15.0	15.0		15.0	15.0	15.0
Minimum Split (s)	15.0			24.1	24.1		21.3	21.3		21.3	21.3	21.3
Total Split (s)	30.0			21.0	21.0		68.0	68.0		36.0	36.0	36.0
Total Split (%)	24.9%			17.4%	17.4%		56.5%	56.5%		29.9%	29.9%	29.9%
Maximum Green (s)	25.0			14.9	14.9		61.7	61.7		29.7	29.7	29.7
Yellow Time (s)	3.0			3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0			3.1	3.1		3.3	3.3		3.3	3.3	3.3
Lost Time Adjust (s)	0.0			0.0			0.0			0.0	0.0	0.0
Total Lost Time (s)	5.0			6.1			6.3			6.3	6.3	
Lead/Lag									Lag	Lag	Lag	
Lead-Lag Optimize?									Yes	Yes	Yes	
Vehicle Extension (s)	2.0			2.0	2.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None			None	None		Max	Max		None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	10.0			20.0		8.9		61.7			49.7	49.7
Actuated g/C Ratio	0.12			0.24		0.11		0.74			0.60	0.60
v/c Ratio	0.10			0.50		0.01		0.34			0.21	0.01
Control Delay	34.2			4.3		0.0		4.1			7.9	0.0
Queue Delay	0.0			0.0		0.0		0.0			0.0	0.0

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Fr _t		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	12.0	22.0
Total Split (s)	32.0	22.4
Total Split (%)	27%	19%
Maximum Green (s)	25.0	18.4
Yellow Time (s)	3.0	4.0
All-Red Time (s)	4.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	2.0	3.0
Recall Mode	None	None
Walk Time (s)		5.0
Flash Dont Walk (s)		12.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

Saturday Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	34.2		4.3		0.0			4.1			7.9	0.0
LOS	C		A		A			A		A	A	A
Approach Delay		5.3						4.1			7.7	
Approach LOS		A						A			A	
Queue Length 50th (ft)	9		0		0			65			46	0
Queue Length 95th (ft)	21		39		0			81			68	0
Internal Link Dist (ft)		426			33			983			366	
Turn Bay Length (ft)												80
Base Capacity (vph)	432		1623		598			2592			2007	1018
Starvation Cap Reductn	0		0		0			0			0	0
Spillback Cap Reductn	0		0		0			0			0	0
Storage Cap Reductn	0		0		0			0			0	0
Reduced v/c Ratio	0.04		0.33		0.01			0.34			0.21	0.01

Intersection Summary

Area Type: Other

Cycle Length: 120.4

Actuated Cycle Length: 83

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 5.2

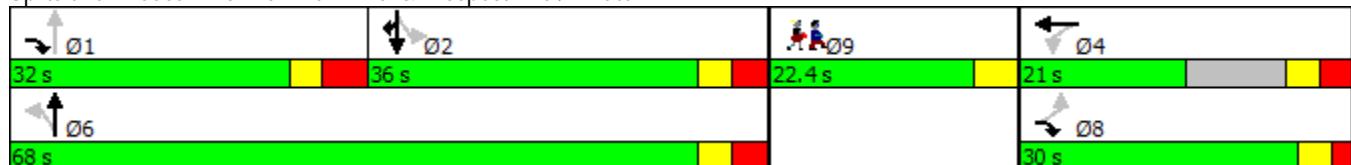
Intersection LOS: A

Intersection Capacity Utilization 55.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: New Park Ave. & Prospect Ave./Private Dr.



Lane Group	Ø1	Ø9
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

Saturday Existing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↓			↑↑			↑↑	↑
Traffic Volume (vph)	12	0	482	1	0	1	410	381	0	2	364	8
Future Volume (vph)	12	0	482	1	0	1	410	381	0	2	364	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			7.0		6.1			6.3		6.3	6.3
Lane Util. Factor	1.00			0.88		1.00			0.95		0.95	1.00
Frt	1.00			0.85		0.95			1.00		1.00	0.85
Flt Protected	0.95			1.00		0.97			0.98		1.00	1.00
Satd. Flow (prot)	1805			2787		1756			3488		3571	1615
Flt Permitted	0.76			1.00		0.97			0.46		0.94	1.00
Satd. Flow (perm)	1436			2787		1756			1626		3353	1615
Peak-hour factor, PHF	0.67	0.92	0.89	0.50	0.50	0.92	0.95	0.86	0.75	0.25	0.90	0.75
Adj. Flow (vph)	18	0	542	2	0	1	432	443	0	8	404	11
RTOR Reduction (vph)	0	0	444	0	3	0	0	0	0	0	0	4
Lane Group Flow (vph)	18	0	98	0	0	0	0	875	0	0	412	7
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	0%	0%	1%	0%
Turn Type	Perm		custom	Perm	NA		Perm	NA		Perm	NA	Prot
Protected Phases			1 8		4			6			2	2
Permitted Phases	8			4			6	1		2		
Actuated Green, G (s)	10.0		20.0		8.9			61.7			49.7	49.7
Effective Green, g (s)	10.0		15.0		8.9			61.7			49.7	49.7
Actuated g/C Ratio	0.12		0.18		0.11			0.74			0.60	0.60
Clearance Time (s)	5.0				6.1			6.3			6.3	6.3
Vehicle Extension (s)	2.0				2.0			3.0			3.0	3.0
Lane Grp Cap (vph)	173		503		188			2592			2007	967
v/s Ratio Prot			c0.04					c0.25				0.00
v/s Ratio Perm	0.01				0.00						0.12	
v/c Ratio	0.10		0.19		0.00			0.34			0.21	0.01
Uniform Delay, d1	32.5		28.9		33.1			3.6			7.6	6.7
Progression Factor	1.00		1.00		1.00			1.00			1.00	1.00
Incremental Delay, d2	0.1		0.1		0.0			0.0			0.1	0.0
Delay (s)	32.6		28.9		33.1			3.7			7.7	6.7
Level of Service	C		C		C			A			A	A
Approach Delay (s)		29.1			33.1			3.7			7.6	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		12.3			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.38										
Actuated Cycle Length (s)		83.0			Sum of lost time (s)			23.4				
Intersection Capacity Utilization		55.0%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

Appendix E

Intersection Capacity Analysis Worksheets
Alternative 1 Traffic Volumes
Morning Peak Hour

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 AM Alt1

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑	↑	
Traffic Volume (vph)	640	860	20	10	630	360	20	0	0	300	10	190
Future Volume (vph)	640	860	20	10	630	360	20	0	0	300	10	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	12	12	12	12	12	12	11	12	11
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.989				0.850					0.886	
Flt Protected	0.950				0.997			0.950		0.950	0.994	
Satd. Flow (prot)	1652	3213	0	0	3406	1599	0	1805	0	1625	1551	0
Flt Permitted	0.148				0.802			0.950		0.950	0.994	
Satd. Flow (perm)	257	3213	0	0	2739	1599	0	1805	0	1625	1551	0
Right Turn on Red		Yes				No			Yes		Yes	
Satd. Flow (RTOR)		8									136	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		386			245			138			2131	
Travel Time (s)		8.8			5.6			3.1			48.4	
Peak Hour Factor	0.94	0.93	0.27	0.25	0.87	0.85	0.50	0.25	0.25	0.79	0.25	0.76
Heavy Vehicles (%)	2%	4%	0%	0%	6%	1%	0%	0%	0%	2%	0%	3%
Adj. Flow (vph)	681	925	74	40	724	424	40	0	0	380	40	250
Shared Lane Traffic (%)										10%		
Lane Group Flow (vph)	681	999	0	0	764	424	0	40	0	342	328	0
Turn Type	D.P+P	NA		Perm	NA	pt+ov	Split	NA		Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2			2								
Detector Phase	1	1 2		2	2	2 4	5	5		4	4	
Switch Phase												
Minimum Initial (s)	5.0			15.0	15.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5			22.9	22.9		13.0	13.0		13.0	13.0	
Total Split (s)	10.0			35.0	35.0		10.0	10.0		35.0	35.0	
Total Split (%)	8.9%			31.3%	31.3%		8.9%	8.9%		31.3%	31.3%	
Maximum Green (s)	6.0			27.1	27.1		2.0	2.0		27.0	27.0	
Yellow Time (s)	3.0			3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0			4.9	4.9		5.0	5.0		5.0	5.0	
Lost Time Adjust (s)	0.0			0.0			0.0			0.0	0.0	
Total Lost Time (s)	4.0			7.9			8.0			8.0	8.0	
Lead/Lag	Lead			Lag	Lag				Lag	Lag		
Lead-Lag Optimize?	Yes			Yes	Yes				Yes	Yes		
Vehicle Extension (s)	1.5			2.5	2.5		1.5	1.5		1.5	1.5	
Recall Mode	None			C-Max	C-Max		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	49.5	53.5		27.1	65.0		8.6		29.9	29.9		
Actuated g/C Ratio	0.44	0.48		0.24	0.58		0.08		0.27	0.27		
v/c Ratio	1.99	0.65		1.15	0.46		0.29		0.79	0.64		
Control Delay	476.1	25.7		124.7	14.5		54.4		51.0	25.7		
Queue Delay	0.0	0.0		0.0	0.0		0.0		0.0	0.0		
Total Delay	476.1	25.7		124.7	14.5		54.4		51.0	25.7		
LOS	F	C		F	B		D		D	C		

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	22.0
Total Split (%)	20%
Maximum Green (s)	18.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	19.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 AM Alt1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		208.3			85.4			54.4			38.6	
Approach LOS			F			F		D			D	
Queue Length 50th (ft)	~719	276		~341	162		28	238	127			
Queue Length 95th (ft)	#1046	404		#440	181		17	271	0			
Internal Link Dist (ft)		306			165			58			2051	
Turn Bay Length (ft)												
Base Capacity (vph)	343	1537			662	945		139		451	529	
Starvation Cap Reductn	0	0			0	0		0		0	0	
Spillback Cap Reductn	0	0			0	0		0		0	0	
Storage Cap Reductn	0	0			0	0		0		0	0	
Reduced v/c Ratio	1.99	0.65			1.15	0.45		0.29		0.76	0.62	

Intersection Summary

Area Type: Other

Cycle Length: 112

Actuated Cycle Length: 112

Offset: 22.1 (20%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.99

Intersection Signal Delay: 134.0

Intersection LOS: F

Intersection Capacity Utilization 86.4%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: New Park Ave. & New Britain Ave.



Lane Group	Ø3
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 AM Alt1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑	↑	
Traffic Volume (vph)	640	860	20	10	630	360	20	0	0	300	10	190
Future Volume (vph)	640	860	20	10	630	360	20	0	0	300	10	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12	12	12	12	11	12	11
Total Lost time (s)	4.0	4.0			7.9	7.9		8.0		8.0	8.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.95	0.95	
Frt	1.00	0.99			1.00	0.85		1.00		1.00	0.89	
Flt Protected	0.95	1.00			1.00	1.00		0.95		0.95	0.99	
Satd. Flow (prot)	1652	3213			3407	1599		1805		1625	1550	
Flt Permitted	0.15	1.00			0.80	1.00		0.95		0.95	0.99	
Satd. Flow (perm)	257	3213			2740	1599		1805		1625	1550	
Peak-hour factor, PHF	0.94	0.93	0.27	0.25	0.87	0.85	0.50	0.25	0.25	0.79	0.25	0.76
Adj. Flow (vph)	681	925	74	40	724	424	40	0	0	380	40	250
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	100	0
Lane Group Flow (vph)	681	995	0	0	764	424	0	40	0	342	228	0
Heavy Vehicles (%)	2%	4%	0%	0%	6%	1%	0%	0%	0%	2%	0%	3%
Turn Type	D.P+P	NA		Perm	NA	pt+ov	Split	NA		Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2			2								
Actuated Green, G (s)	45.6	49.6			27.1	64.9		8.6		29.9	29.9	
Effective Green, g (s)	45.6	49.6			27.1	64.9		8.6		29.9	29.9	
Actuated g/C Ratio	0.41	0.44			0.24	0.58		0.08		0.27	0.27	
Clearance Time (s)	4.0				7.9			8.0		8.0	8.0	
Vehicle Extension (s)	1.5				2.5			1.5		1.5	1.5	
Lane Grp Cap (vph)	335	1422			662	926		138		433	413	
v/s Ratio Prot	c0.34	0.31				0.27		c0.02		c0.21	0.15	
v/s Ratio Perm	c0.49				0.28							
v/c Ratio	2.03	0.70			1.15	0.46		0.29		0.79	0.55	
Uniform Delay, d1	31.8	25.2			42.5	13.5		48.8		38.1	35.3	
Progression Factor	1.00	1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	475.1	1.2			85.8	0.1		0.4		8.6	0.9	
Delay (s)	506.9	26.4			128.2	13.6		49.2		46.7	36.2	
Level of Service	F	C			F	B		D		D	D	
Approach Delay (s)		221.2			87.3			49.2			41.6	
Approach LOS		F			F			D			D	
Intersection Summary												
HCM 2000 Control Delay		141.2			HCM 2000 Level of Service				F			
HCM 2000 Volume to Capacity ratio		1.48										
Actuated Cycle Length (s)		112.0			Sum of lost time (s)				31.9			
Intersection Capacity Utilization		86.4%			ICU Level of Service				E			
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 AM Alt1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	200	110	120	890	410	150
Future Volume (vph)	200	110	120	890	410	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	1.00
Frt			0.850			0.850
Flt Protected	0.950			0.994		
Satd. Flow (prot)	1770	1599	0	3527	3539	1615
Flt Permitted	0.950			0.818		
Satd. Flow (perm)	1770	1599	0	2902	3539	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		157				185
Link Speed (mph)	30			30	30	
Link Distance (ft)	297			639	425	
Travel Time (s)	6.8			14.5	9.7	
Peak Hour Factor	0.89	0.70	0.84	0.91	0.91	0.81
Heavy Vehicles (%)	2%	1%	0%	2%	2%	0%
Adj. Flow (vph)	225	157	143	978	451	185
Shared Lane Traffic (%)						
Lane Group Flow (vph)	225	157	0	1121	451	185
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases				2		2
Detector Phase	4	4	1	1 2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		30.0	30.0
Minimum Split (s)	14.0	14.0	12.0		36.0	36.0
Total Split (s)	23.0	23.0	18.0		39.0	39.0
Total Split (%)	28.8%	28.8%	22.5%		48.8%	48.8%
Maximum Green (s)	17.0	17.0	14.0		33.0	33.0
Yellow Time (s)	4.0	4.0	3.0		4.0	4.0
All-Red Time (s)	2.0	2.0	1.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0
Recall Mode	None	None	None		C-Max	C-Max
Act Effct Green (s)	15.0	15.0		51.0	34.4	34.4
Actuated g/C Ratio	0.19	0.19		0.64	0.43	0.43
v/c Ratio	0.68	0.37		0.57	0.30	0.23
Control Delay	40.9	7.6		7.7	12.0	3.2
Queue Delay	0.0	0.0		0.0	0.0	0.0
Total Delay	40.9	7.6		7.7	12.0	3.2
LOS	D	A		A	B	A
Approach Delay	27.2			7.7	9.4	
Approach LOS	C			A	A	
Queue Length 50th (ft)	103	0		121	86	29
Queue Length 95th (ft)	172	20		166	51	5



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	217			559	345	
Turn Bay Length (ft)						
Base Capacity (vph)	376	463		1967	1519	798
Starvation Cap Reductn	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.60	0.34		0.57	0.30	0.23

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 76 (95%), Referenced to phase 2:NBSB and 6:, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 11.7

Intersection LOS: B

Intersection Capacity Utilization 77.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: New Park Ave. & Talcott Rd.



HCM Signalized Intersection Capacity Analysis
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 AM Alt1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗	↗ ↖	↑ ↗	↑ ↗	↗ ↗
Traffic Volume (vph)	200	110	120	890	410	150
Future Volume (vph)	200	110	120	890	410	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.99	1.00	1.00
Satd. Flow (prot)	1770	1599		3526	3539	1615
Flt Permitted	0.95	1.00		0.82	1.00	1.00
Satd. Flow (perm)	1770	1599		2903	3539	1615
Peak-hour factor, PHF	0.89	0.70	0.84	0.91	0.91	0.81
Adj. Flow (vph)	225	157	143	978	451	185
RTOR Reduction (vph)	0	128	0	0	0	106
Lane Group Flow (vph)	225	29	0	1121	451	79
Heavy Vehicles (%)	2%	1%	0%	2%	2%	0%
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases			2		2	
Actuated Green, G (s)	15.0	15.0		49.0	34.3	34.3
Effective Green, g (s)	15.0	15.0		49.0	34.3	34.3
Actuated g/C Ratio	0.19	0.19		0.61	0.43	0.43
Clearance Time (s)	6.0	6.0			6.0	6.0
Vehicle Extension (s)	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	331	299		1892	1517	692
v/s Ratio Prot	c0.13	0.02		c0.11	0.13	
v/s Ratio Perm			c0.25		0.05	
v/c Ratio	0.68	0.10		0.59	0.30	0.11
Uniform Delay, d1	30.3	26.9		9.4	15.0	13.7
Progression Factor	1.00	1.00		1.00	0.74	0.97
Incremental Delay, d2	6.0	0.2		0.6	0.5	0.3
Delay (s)	36.2	27.1		10.0	11.6	13.7
Level of Service	D	C		B	B	B
Approach Delay (s)	32.5			10.0	12.2	
Approach LOS	C			B	B	
Intersection Summary						
HCM 2000 Control Delay		14.7		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.61				
Actuated Cycle Length (s)		80.0		Sum of lost time (s)		16.0
Intersection Capacity Utilization		77.5%		ICU Level of Service		D
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 AM Alt1

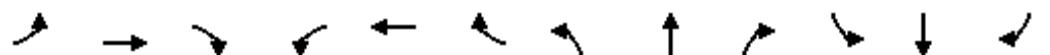
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	10	70	10	110	10	960	120	70	480	20
Future Volume (vph)	10	0	10	70	10	110	10	960	120	70	480	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	249		0
Storage Lanes	0		0	0		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95
Frt												0.989
Flt Protected						0.968						0.950
Satd. Flow (prot)	0	1717	0	0	1780	1553	0	3495	0	1736	3537	0
Flt Permitted						0.815						0.186
Satd. Flow (perm)	0	1482	0	0	1499	1553	0	3299	0	340	3537	0
Right Turn on Red				Yes			Yes			Yes		Yes
Satd. Flow (RTOR)		75				139			31			16
Link Speed (mph)		30			30			30				30
Link Distance (ft)		156			393			425				656
Travel Time (s)		3.5			8.9			9.7				14.9
Peak Hour Factor	0.38	0.25	0.30	0.87	0.25	0.79	0.56	0.94	0.85	0.79	0.86	0.48
Heavy Vehicles (%)	0%	0%	0%	5%	0%	4%	0%	1%	4%	4%	1%	0%
Adj. Flow (vph)	26	0	33	80	40	139	18	1021	141	89	558	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	59	0	0	120	139	0	1180	0	89	600	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4		4	2			2		
Detector Phase	4	4		4	4	4	2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		5.0	8.0	
Minimum Split (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		9.5	12.0	
Total Split (s)	19.0	19.0		19.0	19.0	19.0	50.0	50.0		11.0	50.0	
Total Split (%)	23.8%	23.8%		23.8%	23.8%	23.8%	62.5%	62.5%		13.8%	62.5%	
Maximum Green (s)	15.0	15.0		15.0	15.0	15.0	46.0	46.0		6.5	46.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.5	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		4.0			4.0	4.0		4.0		4.5	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effct Green (s)		12.2			12.2	12.2		51.8		55.7	51.8	
Actuated g/C Ratio		0.15			0.15	0.15		0.65		0.70	0.65	
v/c Ratio		0.20			0.53	0.39		0.55		0.27	0.26	
Control Delay		7.1			39.3	9.1		6.8		5.1	2.0	
Queue Delay		0.0			0.0	0.0		0.2		0.0	0.0	
Total Delay		7.1			39.3	9.1		7.1		5.1	2.0	
LOS		A			D	A		A		A	A	
Approach Delay		7.1			23.1			7.1		2.4		

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 AM Alt1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			C			A			A	
Queue Length 50th (ft)		0			56	0		73		2	10	
Queue Length 95th (ft)		0			26	32		162		9	23	
Internal Link Dist (ft)		76			313			345			576	
Turn Bay Length (ft)											249	
Base Capacity (vph)		338			281	404		2148		353	2297	
Starvation Cap Reductn		0			0	0		313		0	0	
Spillback Cap Reductn		0			0	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.17			0.43	0.34		0.64		0.25	0.26	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 66 (83%), Referenced to phase 2:NBSB and 6:, Start of Yellow

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 7.5

Intersection LOS: A

Intersection Capacity Utilization 62.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: New Park Ave. & Colt Dr./Oakwood Ave.



HCM Signalized Intersection Capacity Analysis

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 AM Alt1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	10	70	10	110	10	960	120	70	480	20
Future Volume (vph)	10	0	10	70	10	110	10	960	120	70	480	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0		4.0		4.5	4.0
Lane Util. Factor		1.00				1.00	1.00		0.95	1.00	0.95	
Frt		0.92				1.00	0.85		0.98	1.00	0.99	
Flt Protected		0.98				0.97	1.00		1.00	0.95	1.00	
Satd. Flow (prot)		1719				1779	1553		3496	1736	3539	
Flt Permitted		0.84				0.82	1.00		0.94	0.19	1.00	
Satd. Flow (perm)		1483				1499	1553		3300	340	3539	
Peak-hour factor, PHF	0.38	0.25	0.30	0.87	0.25	0.79	0.56	0.94	0.85	0.79	0.86	0.48
Adj. Flow (vph)	26	0	33	80	40	139	18	1021	141	89	558	42
RTOR Reduction (vph)	0	50	0	0	0	118	0	11	0	0	6	0
Lane Group Flow (vph)	0	9	0	0	120	21	0	1169	0	89	594	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	4%	0%	1%	4%	4%	1%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4				4			2		1	2
Permitted Phases	4			4		4	2				2	
Actuated Green, G (s)		12.2			12.2	12.2		50.9		55.3	50.9	
Effective Green, g (s)		12.2			12.2	12.2		50.9		55.3	50.9	
Actuated g/C Ratio		0.15			0.15	0.15		0.64		0.69	0.64	
Clearance Time (s)		4.0			4.0	4.0		4.0		4.5	4.0	
Vehicle Extension (s)		4.0			4.0	4.0		4.0		3.0	4.0	
Lane Grp Cap (vph)	226			228	236		2099			311	2251	
v/s Ratio Prot										c0.02	0.17	
v/s Ratio Perm		0.01			c0.08	0.01		c0.35		0.18		
v/c Ratio		0.04			0.53	0.09		0.56		0.29	0.26	
Uniform Delay, d1		28.9			31.2	29.1		8.2		5.0	6.4	
Progression Factor		1.00			1.00	1.00		0.68		0.88	0.25	
Incremental Delay, d2		0.1			2.8	0.2		0.9		0.5	0.3	
Delay (s)		29.0			34.1	29.4		6.5		4.9	1.9	
Level of Service		C			C	C		A		A	A	
Approach Delay (s)		29.0			31.5			6.5			2.3	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		8.7			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.53										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			12.5				
Intersection Capacity Utilization		62.4%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 AM Alt1

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑				↑	↑↓		↑	↑↓	↑
Traffic Volume (vph)	160	0	90	0	0	10	130	910	10	10	500	190
Future Volume (vph)	160	0	90	0	0	10	130	910	10	10	500	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	315		0	200		0
Storage Lanes	1		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Fr _t			0.850		0.865			0.995				0.850
Flt Protected	0.950	0.950					0.950			0.950		
Satd. Flow (prot)	1649	1649	1553	0	1644	0	1770	3524	0	1805	3574	1568
Flt Permitted	0.950	0.950					0.396			0.274		
Satd. Flow (perm)	1649	1649	1553	0	1644	0	738	3524	0	521	3574	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113			466			4			226
Link Speed (mph)			30			30			30			30
Link Distance (ft)			189			135			656			375
Travel Time (s)			4.3			3.1			14.9			8.5
Peak Hour Factor	0.78	0.38	0.80	0.50	0.25	0.38	0.78	0.94	0.33	1.00	0.93	0.84
Heavy Vehicles (%)	4%	0%	4%	0%	0%	0%	2%	2%	0%	0%	1%	3%
Adj. Flow (vph)	205	0	113	0	0	26	167	968	30	10	538	226
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	102	103	113	0	26	0	167	998	0	10	538	226
Turn Type	Split	NA	pt+ov		NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	8	8	8 1	7	7		1	6		5	2	2 8
Permitted Phases							6			2		
Detector Phase	8	8	8 1	7	7		1	6		5	2	2 8
Switch Phase												
Minimum Initial (s)	6.0	6.0		4.0	4.0		4.0	4.0		6.0	6.0	
Minimum Split (s)	10.0	10.0		8.0	8.0		8.0	8.0		10.0	10.0	
Total Split (s)	11.0	11.0		8.0	8.0		12.0	32.0		10.0	30.0	
Total Split (%)	13.8%	13.8%		10.0%	10.0%		15.0%	40.0%		12.5%	37.5%	
Maximum Green (s)	7.0	7.0		4.0	4.0		8.9	28.0		6.0	26.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		0.1	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0			3.1	4.0		4.0	4.0	
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	10.2	10.2	21.6		5.5		58.9	56.0		52.7	46.6	59.2
Actuated g/C Ratio	0.13	0.13	0.27		0.07		0.74	0.70		0.66	0.58	0.74
v/c Ratio	0.49	0.49	0.23		0.05		0.26	0.40		0.02	0.26	0.19
Control Delay	39.5	39.6	5.1		0.2		8.1	10.5		3.3	8.1	2.4
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	19.0
Total Split (s)	19.0
Total Split (%)	24%
Maximum Green (s)	17.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	4.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 AM Alt1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	39.5	39.6	5.1		0.2		8.1	10.5		3.3	8.1	2.4
LOS	D	D	A		A		A	B		A	A	A
Approach Delay		27.3			0.2			10.2			6.4	
Approach LOS		C			A			B			A	
Queue Length 50th (ft)	50	51	0		0		28	120		1	42	0
Queue Length 95th (ft)	81	37	23		0		66	210		m1	m122	m62
Internal Link Dist (ft)		109			55			576			295	
Turn Bay Length (ft)							315				200	
Base Capacity (vph)	214	214	513		546		666	2466		440	2083	1223
Starvation Cap Reductn	0	0	0		0		0	0		0	0	0
Spillback Cap Reductn	0	0	0		0		0	0		0	0	0
Storage Cap Reductn	0	0	0		0		0	0		0	0	0
Reduced v/c Ratio	0.48	0.48	0.22		0.05		0.25	0.40		0.02	0.26	0.18

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 51 (64%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 11.1

Intersection LOS: B

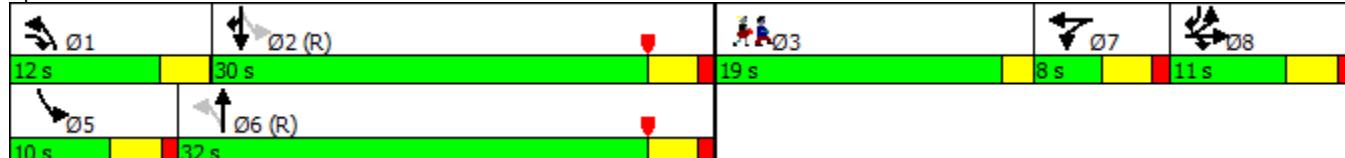
Intersection Capacity Utilization 51.6%

ICU Level of Service A

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: New Park Ave. & West Hartford Place/Private Dr.



Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor
2030 AM Alt1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑	↑		↔		↑	↑↓		↑	↑↑	↑
Traffic Volume (vph)	160	0	90	0	0	10	130	910	10	10	500	190
Future Volume (vph)	160	0	90	0	0	10	130	910	10	10	500	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		3.1	4.0		4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85		0.86		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00		1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1649	1649	1553		1644		1770	3525		1805	3574	1568
Flt Permitted	0.95	0.95	1.00		1.00		0.40	1.00		0.27	1.00	1.00
Satd. Flow (perm)	1649	1649	1553		1644		738	3525		521	3574	1568
Peak-hour factor, PHF	0.78	0.38	0.80	0.50	0.25	0.38	0.78	0.94	0.33	1.00	0.93	0.84
Adj. Flow (vph)	205	0	112	0	0	26	167	968	30	10	538	226
RTOR Reduction (vph)	0	0	81	0	25	0	0	1	0	0	0	72
Lane Group Flow (vph)	102	103	32	0	1	0	167	997	0	10	538	154
Heavy Vehicles (%)	4%	0%	4%	0%	0%	0%	2%	2%	0%	0%	1%	3%
Turn Type	Split	NA	pt+ov		NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	8	8	8 1	7	7		1	6		5	2	2 8
Permitted Phases							6			2		
Actuated Green, G (s)	10.2	10.2	22.5		2.2		55.6	50.4		45.4	44.2	54.4
Effective Green, g (s)	10.2	10.2	22.5		2.2		55.6	50.4		45.4	44.2	54.4
Actuated g/C Ratio	0.13	0.13	0.28		0.03		0.70	0.63		0.57	0.55	0.68
Clearance Time (s)	4.0	4.0			4.0		3.1	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	210	210	436		45		619	2220		314	1974	1066
v/s Ratio Prot	0.06	c0.06	0.02		c0.00		c0.03	c0.28		0.00	0.15	0.10
v/s Ratio Perm							0.16			0.02		
v/c Ratio	0.49	0.49	0.07		0.02		0.27	0.45		0.03	0.27	0.14
Uniform Delay, d1	32.5	32.5	21.1		37.8		4.4	7.6		7.5	9.4	4.5
Progression Factor	1.00	1.00	1.00		1.00		1.58	1.37		0.54	0.77	3.89
Incremental Delay, d2	1.8	1.8	0.1		0.1		0.2	0.6		0.0	0.3	0.0
Delay (s)	34.2	34.3	21.2		38.0		7.1	11.1		4.1	7.5	17.7
Level of Service	C	C	C		D		A	B		A	A	B
Approach Delay (s)		29.6			38.0			10.5			10.4	
Approach LOS		C			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			13.4				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			51.6%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 AM Alt1

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓		↑	↑	↑	↑	↑↓		↑	↑↓	
Traffic Volume (vph)	30	330	150	250	190	360	130	620	330	290	320	40
Future Volume (vph)	30	330	150	250	190	360	130	620	330	290	320	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	0		0	150		0	410		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.949				0.850		0.950			0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3381	0	1770	1863	1538	1736	3277	0	1770	3349	0
Flt Permitted	0.623			0.183			0.384			0.312		
Satd. Flow (perm)	1172	3381	0	341	1863	1538	702	3277	0	581	3349	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		93				419		98			28	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		282			376			402			1063	
Travel Time (s)		6.4			8.5			9.1			24.2	
Peak Hour Factor	0.70	0.77	0.68	0.87	0.88	0.86	0.80	0.88	0.94	0.91	0.97	0.59
Heavy Vehicles (%)	1%	1%	2%	2%	2%	5%	4%	4%	6%	2%	5%	5%
Adj. Flow (vph)	43	429	221	287	216	419	163	705	351	319	330	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	650	0	287	216	419	163	1056	0	319	398	0
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6			2		
Detector Phase	7	4		3	8	8	1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	9.0		5.0	9.0	9.0	6.0	15.0		6.0	15.0	
Minimum Split (s)	9.5	14.0		9.5	14.0	14.0	10.5	20.1		10.5	20.1	
Total Split (s)	9.5	14.0		10.0	14.5	14.5	10.5	22.5		11.0	23.0	
Total Split (%)	11.9%	17.5%		12.5%	18.1%	18.1%	13.1%	28.1%		13.8%	28.8%	
Maximum Green (s)	5.5	9.0		6.0	9.5	9.5	6.5	17.4		7.0	17.9	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.6		3.0	3.6	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes				Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	22.5	16.2		37.3	31.2	42.2	24.9	17.4		26.1	18.0	
Actuated g/C Ratio	0.28	0.20		0.47	0.39	0.53	0.31	0.22		0.33	0.22	
v/c Ratio	0.12	0.86		0.63	0.30	0.42	0.54	1.34		1.09	0.51	
Control Delay	17.1	41.0		27.5	24.8	3.8	25.6	185.1		104.4	27.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	22.5
Total Split (s)	22.5
Total Split (%)	28%
Maximum Green (s)	18.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	10
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 AM Alt1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	17.1	41.0		27.5	24.8	3.8	25.6	185.1		104.4	27.9	
LOS	B	D		C	C	A	C	F		F	C	
Approach Delay		39.5			16.1			163.8			62.0	
Approach LOS		D			B			F			E	
Queue Length 50th (ft)	10	133		75	71	0	33	-245		-136	85	
Queue Length 95th (ft)	32	#249		#323	#235	56	111	#475		#257	128	
Internal Link Dist (ft)		202			296			322			983	
Turn Bay Length (ft)	50						150			410		
Base Capacity (vph)	376	757		459	727	1009	303	789		293	775	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.11	0.86		0.63	0.30	0.42	0.54	1.34		1.09	0.51	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 26 (33%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.34

Intersection Signal Delay: 80.6

Intersection LOS: F

Intersection Capacity Utilization 86.6%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: New Park Ave. & Flatbush Ave./Flatbush Ave.



Lane Group	Ø9
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor
2030 AM Alt1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑	↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	30	330	150	250	190	360	130	620	330	290	320	40
Future Volume (vph)	30	330	150	250	190	360	130	620	330	290	320	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	3381		1770	1863	1538	1736	3277		1770	3350	
Flt Permitted	0.62	1.00		0.18	1.00	1.00	0.38	1.00		0.31	1.00	
Satd. Flow (perm)	1172	3381		342	1863	1538	701	3277		582	3350	
Peak-hour factor, PHF	0.70	0.77	0.68	0.87	0.88	0.86	0.80	0.88	0.94	0.91	0.97	0.59
Adj. Flow (vph)	43	429	221	287	216	419	162	705	351	319	330	68
RTOR Reduction (vph)	0	72	0	0	0	219	0	83	0	0	24	0
Lane Group Flow (vph)	43	578	0	287	216	200	163	973	0	319	374	0
Heavy Vehicles (%)	1%	1%	2%	2%	2%	5%	4%	4%	6%	2%	5%	5%
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6			2		
Actuated Green, G (s)	21.2	17.8		38.6	31.2	38.2	18.6	12.2		19.8	12.8	
Effective Green, g (s)	21.2	17.8		38.6	31.2	38.2	18.6	12.2		19.8	12.8	
Actuated g/C Ratio	0.26	0.22		0.48	0.39	0.48	0.23	0.15		0.25	0.16	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	336	752		464	726	830	245	499		247	536	
v/s Ratio Prot	0.01	c0.17		c0.13	0.12	0.09	0.05	c0.30		c0.11	0.11	
v/s Ratio Perm	0.03			0.17		0.04	0.10			0.21		
v/c Ratio	0.13	0.77		0.62	0.30	0.24	0.67	1.95		1.29	0.70	
Uniform Delay, d1	22.1	29.2		14.5	16.8	12.3	26.1	33.9		29.0	31.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.01	0.88		1.00	1.00	
Incremental Delay, d2	0.1	4.3		1.7	0.1	0.1	4.9	434.2		158.0	7.4	
Delay (s)	22.2	33.4		16.2	16.9	12.4	31.3	464.1		187.0	39.2	
Level of Service	C	C		B	B	B	C	F		F	D	
Approach Delay (s)		32.7			14.6			406.2			104.9	
Approach LOS		C			B			F			F	
Intersection Summary												
HCM 2000 Control Delay		170.8										F
HCM 2000 Volume to Capacity ratio		0.99										
Actuated Cycle Length (s)		80.0										22.6
Intersection Capacity Utilization		86.6%										E
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 AM Alt1

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↓		↑↑	↓↓		↑↑	↓↓	↑↑
Traffic Volume (vph)	10	0	340	0	0	0	460	550	10	0	260	10
Future Volume (vph)	10	0	340	0	0	0	460	550	10	0	260	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		80
Storage Lanes	1		2	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Frt			0.850					0.995				0.850
Flt Protected	0.950							0.979				
Satd. Flow (prot)	1805	0	2760	0	1900	0	0	3432	0	0	3406	1615
Flt Permitted	0.950							0.510				
Satd. Flow (perm)	1805	0	2760	0	1900	0	0	1788	0	0	3406	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			343					3				200
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		506			113			1063			446	
Travel Time (s)		11.5			2.6			24.2			10.1	
Peak Hour Factor	0.75	0.92	0.99	0.25	0.25	0.25	0.97	0.89	0.25	0.25	0.85	0.62
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	2%	3%	0%	0%	6%	0%
Adj. Flow (vph)	13	0	343	0	0	0	474	618	40	0	306	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	0	343	0	0	0	0	1132	0	0	306	16
Turn Type	Prot		custom				custom	NA			NA	Prot
Protected Phases	8		1 8	4	4			1 6			2	2
Permitted Phases								6			2	
Detector Phase	8		1 8	4	4		6	1 6		2	2	2
Switch Phase												
Minimum Initial (s)	10.0			5.0	5.0		15.0		15.0	15.0		15.0
Minimum Split (s)	15.0			24.1	24.1		21.3		21.3	21.3		21.3
Total Split (s)	24.1			24.1	24.1		33.9		21.9	21.9		21.9
Total Split (%)	23.2%			23.2%	23.2%		32.6%		21.0%	21.0%		21.0%
Maximum Green (s)	19.1			18.0	18.0		27.6		15.6	15.6		15.6
Yellow Time (s)	3.0			3.0	3.0		3.0		3.0	3.0		3.0
All-Red Time (s)	2.0			3.1	3.1		3.3		3.3	3.3		3.3
Lost Time Adjust (s)	0.0			0.0					0.0	0.0		0.0
Total Lost Time (s)	5.0			6.1					6.3	6.3		6.3
Lead/Lag			Lag		Lag				Lag	Lag		Lag
Lead-Lag Optimize?			Yes		Yes				Yes	Yes		Yes
Vehicle Extension (s)	2.0			2.0	2.0		3.0		3.0	3.0		3.0
Recall Mode	None			None	None		C-Max		C-Max	C-Max		C-Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	10.0		75.2				82.1		15.6	15.6		15.6
Actuated g/C Ratio	0.10		0.72				0.79		0.15	0.15		0.15
v/c Ratio	0.08		0.16				3.56dl		0.60	0.04		
Control Delay	44.1		0.7				12.0		46.8	0.2		
Queue Delay	0.0		0.0				0.0		0.0	0.0		0.0

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Fr _t		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	12.0	22.0
Total Split (s)	12.0	22.0
Total Split (%)	12%	21%
Maximum Green (s)	5.0	18.0
Yellow Time (s)	3.0	4.0
All-Red Time (s)	4.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	2.0	3.0
Recall Mode	None	None
Walk Time (s)		5.0
Flash Dont Walk (s)		12.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 AM Alt1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	44.1		0.7					12.0			46.8	0.2
LOS	D		A					B			D	A
Approach Delay		2.2						12.0			44.5	
Approach LOS		A						B			D	
Queue Length 50th (ft)	8		0					180			101	0
Queue Length 95th (ft)	23		11					275			138	0
Internal Link Dist (ft)		426			33			983			366	
Turn Bay Length (ft)												80
Base Capacity (vph)	331		2088					1410			510	412
Starvation Cap Reductn	0		0					0			0	0
Spillback Cap Reductn	0		0					0			0	0
Storage Cap Reductn	0		0					0			0	0
Reduced v/c Ratio	0.04		0.16					0.80			0.60	0.04

Intersection Summary

Area Type: Other

Cycle Length: 104.1

Actuated Cycle Length: 104.1

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow, Master Intersection

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 15.9

Intersection LOS: B

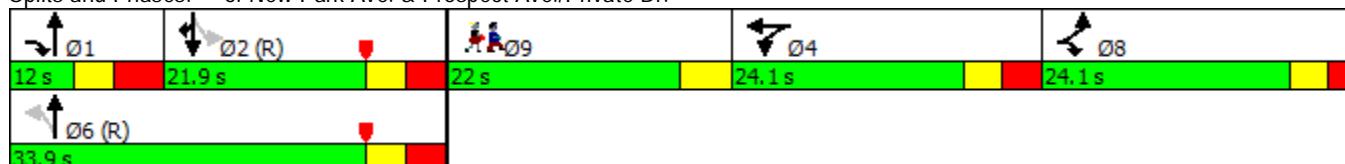
Intersection Capacity Utilization 59.1%

ICU Level of Service B

Analysis Period (min) 15

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: New Park Ave. & Prospect Ave./Private Dr.



Lane Group	Ø1	Ø9
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Appendix E

Intersection Capacity Analysis Worksheets
Alternative 1 Traffic Volumes
Afternoon Peak Hour

HCM Signalized Intersection Capacity Analysis
6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 AM Alt1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↓			↑↑		↑↑	↑↑	↑
Traffic Volume (vph)	10	0	340	0	0	0	460	550	10	0	260	10
Future Volume (vph)	10	0	340	0	0	0	460	550	10	0	260	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			7.0					7.0		6.3	6.3
Lane Util. Factor	1.00			0.88					0.95		0.95	1.00
Frt	1.00			0.85					0.99		1.00	0.85
Flt Protected	0.95			1.00					0.98		1.00	1.00
Satd. Flow (prot)	1805			2760					3432		3406	1615
Flt Permitted	0.95			1.00					0.51		1.00	1.00
Satd. Flow (perm)	1805			2760					1787		3406	1615
Peak-hour factor, PHF	0.75	0.92	0.99	0.25	0.25	0.25	0.97	0.89	0.25	0.25	0.85	0.62
Adj. Flow (vph)	13	0	343	0	0	0	474	618	40	0	306	16
RTOR Reduction (vph)	0	0	112	0	0	0	0	1	0	0	0	14
Lane Group Flow (vph)	13	0	231	0	0	0	0	1131	0	0	306	2
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	2%	3%	0%	0%	6%	0%
Turn Type	Prot		custom				custom	NA			NA	Prot
Protected Phases	8		1 8	4	4			1 6			2	2
Permitted Phases							6			2		
Actuated Green, G (s)	10.0		75.2					82.8			15.6	15.6
Effective Green, g (s)	10.0		70.2					82.8			15.6	15.6
Actuated g/C Ratio	0.10		0.67					0.80			0.15	0.15
Clearance Time (s)	5.0										6.3	6.3
Vehicle Extension (s)	2.0										3.0	3.0
Lane Grp Cap (vph)	173		1861					1421			510	242
v/s Ratio Prot	0.01		c0.08								0.09	0.00
v/s Ratio Perm								c0.63				
v/c Ratio	0.08		0.12					3.56dl			0.60	0.01
Uniform Delay, d1	42.8		6.0					5.9			41.3	37.7
Progression Factor	1.00		1.00					1.00			1.00	1.00
Incremental Delay, d2	0.1		0.0					3.0			5.1	0.1
Delay (s)	42.9		6.0					8.9			46.5	37.7
Level of Service	D		A					A			D	D
Approach Delay (s)		7.4			0.0			8.9			46.0	
Approach LOS		A			A			A			D	

Intersection Summary

HCM 2000 Control Delay 15.2 HCM 2000 Level of Service B

HCM 2000 Volume to Capacity ratio 0.89

Actuated Cycle Length (s) 104.1 Sum of lost time (s) 28.4

Intersection Capacity Utilization 59.1% ICU Level of Service B

Analysis Period (min) 15

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 PM ALT1

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑	↑	
Traffic Volume (vph)	330	970	10	10	990	460	10	10	10	550	10	410
Future Volume (vph)	330	970	10	10	990	460	10	10	10	550	10	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	12	12	12	12	12	12	11	12	11
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.998				0.850					0.955	0.873
Flt Protected		0.950				0.998				0.984	0.950	0.994
Satd. Flow (prot)	1668	3302	0	0	3507	1599	0	1609	0	1625	1494	0
Flt Permitted		0.148				0.596				0.984	0.950	0.994
Satd. Flow (perm)	260	3302	0	0	2094	1599	0	1609	0	1625	1494	0
Right Turn on Red			Yes				No			Yes		Yes
Satd. Flow (RTOR)		1							16		233	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		386			245			138			2131	
Travel Time (s)		8.8			5.6			3.1			48.4	
Peak Hour Factor	0.92	0.95	0.75	0.25	0.91	0.86	0.25	0.25	0.25	0.89	0.50	0.91
Heavy Vehicles (%)	1%	1%	67%	50%	1%	1%	0%	0%	33%	2%	100%	1%
Adj. Flow (vph)	359	1021	13	40	1088	535	40	40	40	618	20	451
Shared Lane Traffic (%)										10%		
Lane Group Flow (vph)	359	1034	0	0	1128	535	0	120	0	556	533	0
Turn Type	D.P+P	NA		Perm	NA	pt+ov	Split	NA		Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2			2								
Detector Phase	1	1 2		2	2	2 4	5	5		4	4	
Switch Phase												
Minimum Initial (s)	5.0			15.0	15.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5			22.9	22.9		13.0	13.0		13.0	13.0	
Total Split (s)	10.0			35.0	35.0		10.0	10.0		35.0	35.0	
Total Split (%)	8.9%			31.3%	31.3%		8.9%	8.9%		31.3%	31.3%	
Maximum Green (s)	6.0			27.1	27.1		2.0	2.0		27.0	27.0	
Yellow Time (s)	3.0			3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0			4.9	4.9		5.0	5.0		5.0	5.0	
Lost Time Adjust (s)	0.0			0.0			0.0			0.0	0.0	
Total Lost Time (s)	4.0			7.9			8.0			8.0	8.0	
Lead/Lag	Lead			Lag	Lag					Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes					Yes	Yes	
Vehicle Extension (s)	1.5			2.5	2.5		1.5	1.5		1.5	1.5	
Recall Mode	None			C-Max	C-Max		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	37.0	41.0			27.1	76.2		2.0		49.0	49.0	
Actuated g/C Ratio	0.33	0.37			0.24	0.68		0.02		0.44	0.44	
v/c Ratio	2.23	0.86			2.23	0.49		2.73		0.78	0.68	
Control Delay	593.5	41.1			582.9	6.0		855.9		36.3	18.6	
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay	593.5	41.1			582.9	6.0		855.9		36.3	18.6	
LOS	F	D			F	A		F		D	B	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	22.0
Total Split (%)	20%
Maximum Green (s)	18.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	19.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 PM ALT1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		183.5			397.3			855.9			27.7	
Approach LOS			F			F			F			C
Queue Length 50th (ft)	~367	357			-691	67		~136		352	178	
Queue Length 95th (ft)	#555	448			#824	90		#39		501	65	
Internal Link Dist (ft)		306			165			58			2051	
Turn Bay Length (ft)												
Base Capacity (vph)	161	1209			506	1087		44		710	784	
Starvation Cap Reductn	0	0			0	0		0		0	0	
Spillback Cap Reductn	0	0			0	0		0		0	0	
Storage Cap Reductn	0	0			0	0		0		0	0	
Reduced v/c Ratio	2.23	0.86			2.23	0.49		2.73		0.78	0.68	

Intersection Summary

Area Type: Other

Cycle Length: 112

Actuated Cycle Length: 112

Offset: 32.1 (29%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 2.73

Intersection Signal Delay: 246.0

Intersection LOS: F

Intersection Capacity Utilization 106.1%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: New Park Ave. & New Britain Ave.



Lane Group	Ø3
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 PM ALT1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑	↑	
Traffic Volume (vph)	330	970	10	10	990	460	10	10	10	550	10	410
Future Volume (vph)	330	970	10	10	990	460	10	10	10	550	10	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12	12	12	12	11	12	11
Total Lost time (s)	4.0	4.0			7.9	7.9		8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.95		0.95
Frt	1.00	1.00			1.00	0.85		0.95		1.00		0.87
Flt Protected	0.95	1.00			1.00	1.00		0.98		0.95		0.99
Satd. Flow (prot)	1668	3303			3508	1599		1608		1625		1495
Flt Permitted	0.15	1.00			0.60	1.00		0.98		0.95		0.99
Satd. Flow (perm)	259	3303			2094	1599		1608		1625		1495
Peak-hour factor, PHF	0.92	0.95	0.75	0.25	0.91	0.86	0.25	0.25	0.25	0.89	0.50	0.91
Adj. Flow (vph)	359	1021	13	40	1088	535	40	40	40	618	20	451
RTOR Reduction (vph)	0	1	0	0	0	0	0	16	0	0	131	0
Lane Group Flow (vph)	359	1033	0	0	1128	535	0	104	0	556	402	0
Heavy Vehicles (%)	1%	1%	67%	50%	1%	1%	0%	0%	33%	2%	100%	1%
Turn Type	D.P+P	NA		Perm	NA	pt+ov	Split	NA		Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2			2								
Actuated Green, G (s)	33.1	37.1			27.1	76.1		2.0		49.0		49.0
Effective Green, g (s)	33.1	37.1			27.1	76.1		2.0		49.0		49.0
Actuated g/C Ratio	0.30	0.33			0.24	0.68		0.02		0.44		0.44
Clearance Time (s)	4.0				7.9			8.0		8.0		8.0
Vehicle Extension (s)	1.5				2.5			1.5		1.5		1.5
Lane Grp Cap (vph)	152	1094			506	1086		28		710		654
v/s Ratio Prot	c0.13	0.31				0.33		c0.06		c0.34		0.27
v/s Ratio Perm	c0.57				0.54							
v/c Ratio	2.36	0.94			2.23	0.49		3.72		0.78		0.61
Uniform Delay, d1	37.5	36.4			42.5	8.6		55.0		27.0		24.2
Progression Factor	1.00	1.00			1.00	1.00		1.00		1.00		1.00
Incremental Delay, d2	632.7	15.4			559.5	0.1		1308.4		5.2		1.2
Delay (s)	670.2	51.9			602.0	8.8		1363.4		32.2		25.4
Level of Service	F	D			F	A		F		C		C
Approach Delay (s)		211.2			411.1			1363.4				28.9
Approach LOS		F			F			F				C
Intersection Summary												
HCM 2000 Control Delay		275.0			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.54										
Actuated Cycle Length (s)		112.0			Sum of lost time (s)			31.9				
Intersection Capacity Utilization		106.1%			ICU Level of Service			G				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 PM ALT1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	170	130	150	750	950	300
Future Volume (vph)	170	130	150	750	950	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	1.00
Frt			0.850			0.850
Flt Protected	0.950			0.992		
Satd. Flow (prot)	1787	1615	0	3551	3574	1615
Flt Permitted	0.950			0.564		
Satd. Flow (perm)	1787	1615	0	2019	3574	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		169				341
Link Speed (mph)	30			30	30	
Link Distance (ft)	297			639	425	
Travel Time (s)	6.8			14.5	9.7	
Peak Hour Factor	0.94	0.77	0.88	0.81	0.88	0.88
Heavy Vehicles (%)	1%	0%	0%	1%	1%	0%
Adj. Flow (vph)	181	169	170	926	1080	341
Shared Lane Traffic (%)						
Lane Group Flow (vph)	181	169	0	1096	1080	341
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases				2		2
Detector Phase	4	4	1	1 2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		30.0	30.0
Minimum Split (s)	14.0	14.0	12.0		36.0	36.0
Total Split (s)	20.0	20.0	21.0		39.0	39.0
Total Split (%)	25.0%	25.0%	26.3%		48.8%	48.8%
Maximum Green (s)	14.0	14.0	17.0		33.0	33.0
Yellow Time (s)	4.0	4.0	3.0		4.0	4.0
All-Red Time (s)	2.0	2.0	1.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0
Recall Mode	None	None	None		C-Max	C-Max
Act Effct Green (s)	12.7	12.7		53.3	35.5	35.5
Actuated g/C Ratio	0.16	0.16		0.67	0.44	0.44
v/c Ratio	0.64	0.42		0.67	0.68	0.38
Control Delay	42.1	8.7		7.3	11.9	1.7
Queue Delay	0.0	0.0		0.0	0.3	0.0
Total Delay	42.1	8.7		7.3	12.2	1.7
LOS	D	A		A	B	A
Approach Delay	26.0			7.3	9.7	
Approach LOS	C			A	A	
Queue Length 50th (ft)	84	0		104	204	12
Queue Length 95th (ft)	148	31		116	206	m17



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	217			559	345	
Turn Bay Length (ft)						
Base Capacity (vph)	312	422		1696	1587	906
Starvation Cap Reductn	0	0		0	112	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.58	0.40		0.65	0.73	0.38

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 76 (95%), Referenced to phase 2:NBSB and 6:, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 10.8

Intersection LOS: B

Intersection Capacity Utilization 74.1%

ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: New Park Ave. & Talcott Rd.



HCM Signalized Intersection Capacity Analysis
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 PM ALT1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗	↗ ↖	↑ ↗	↑ ↗	↗ ↗
Traffic Volume (vph)	170	130	150	750	950	300
Future Volume (vph)	170	130	150	750	950	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.99	1.00	1.00
Satd. Flow (prot)	1787	1615		3552	3574	1615
Flt Permitted	0.95	1.00		0.56	1.00	1.00
Satd. Flow (perm)	1787	1615		2018	3574	1615
Peak-hour factor, PHF	0.94	0.77	0.88	0.81	0.88	0.88
Adj. Flow (vph)	181	169	170	926	1080	341
RTOR Reduction (vph)	0	142	0	0	0	189
Lane Group Flow (vph)	181	27	0	1096	1080	152
Heavy Vehicles (%)	1%	0%	0%	1%	1%	0%
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases			2		2	
Actuated Green, G (s)	12.7	12.7		51.3	35.6	35.6
Effective Green, g (s)	12.7	12.7		51.3	35.6	35.6
Actuated g/C Ratio	0.16	0.16		0.64	0.45	0.45
Clearance Time (s)	6.0	6.0			6.0	6.0
Vehicle Extension (s)	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	283	256		1595	1590	718
v/s Ratio Prot	c0.10	0.02		c0.13	0.30	
v/s Ratio Perm				c0.31		0.09
v/c Ratio	0.64	0.10		0.69	0.68	0.21
Uniform Delay, d1	31.5	28.8		9.2	17.7	13.6
Progression Factor	1.00	1.00		1.00	0.55	0.45
Incremental Delay, d2	5.3	0.2		1.4	1.6	0.5
Delay (s)	36.8	29.0		10.6	11.3	6.5
Level of Service	D	C		B	B	A
Approach Delay (s)	33.0			10.6	10.1	
Approach LOS	C			B	B	
Intersection Summary						
HCM 2000 Control Delay			13.1	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.68			
Actuated Cycle Length (s)			80.0	Sum of lost time (s)		16.0
Intersection Capacity Utilization			74.1%	ICU Level of Service		D
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 PM ALT1

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	10	20	120	10	110	10	800	90	170	1110	10
Future Volume (vph)	30	10	20	120	10	110	10	800	90	170	1110	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	0	0	0	249	0	0
Storage Lanes	0	0	0	0	1	0	0	0	0	1	0	0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95
Fr _t		0.947				0.850		0.984			0.998	
Flt Protected		0.982			0.957			0.999		0.950		
Satd. Flow (prot)	0	1767	0	0	1755	1583	0	3534	0	1770	3603	0
Flt Permitted		0.824			0.674			0.910		0.196		
Satd. Flow (perm)	0	1483	0	0	1236	1583	0	3219	0	365	3603	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38				169		24			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		156			393			425			656	
Travel Time (s)		3.5			8.9			9.7			14.9	
Peak Hour Factor	0.75	0.38	0.47	0.66	0.50	0.65	0.50	0.86	0.80	0.90	0.78	0.50
Heavy Vehicles (%)	0%	0%	0%	4%	0%	2%	0%	0%	4%	2%	0%	0%
Adj. Flow (vph)	40	26	43	182	20	169	20	930	113	189	1423	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	109	0	0	202	169	0	1063	0	189	1443	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4		4	2			2		
Detector Phase	4	4		4	4	4	2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		5.0	8.0	
Minimum Split (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		9.5	12.0	
Total Split (s)	23.0	23.0		23.0	23.0	23.0	46.0	46.0		11.0	46.0	
Total Split (%)	28.8%	28.8%		28.8%	28.8%	28.8%	57.5%	57.5%		13.8%	57.5%	
Maximum Green (s)	19.0	19.0		19.0	19.0	19.0	42.0	42.0		6.5	42.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.5	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		4.0			4.0	4.0		4.0		4.5	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effct Green (s)	17.0			17.0	17.0		44.4		50.0	44.4		
Actuated g/C Ratio	0.21			0.21	0.21		0.56		0.62	0.56		
v/c Ratio	0.32			0.77	0.36		0.59		0.56	0.72		
Control Delay	19.9			49.7	6.8		10.5		12.3	16.5		
Queue Delay	0.0			0.0	0.0		0.3		0.0	0.0		
Total Delay	19.9			49.7	6.8		10.8		12.3	16.5		
LOS	B			D	A		B		B	B		
Approach Delay	19.9			30.1			10.8			16.0		

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 PM ALT1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			C			B			B	
Queue Length 50th (ft)	29				92	0		118		32	281	
Queue Length 95th (ft)	19				80	13		136		56	283	
Internal Link Dist (ft)	76				313			345			576	
Turn Bay Length (ft)											249	
Base Capacity (vph)	381				293	504		1796		344	2000	
Starvation Cap Reductn	0				0	0		256		0	0	
Spillback Cap Reductn	0				0	0		0		0	27	
Storage Cap Reductn	0				0	0		0		0	0	
Reduced v/c Ratio	0.29				0.69	0.34		0.69		0.55	0.73	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 66 (83%), Referenced to phase 2:NBSB and 6:, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 16.1

Intersection LOS: B

Intersection Capacity Utilization 78.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: New Park Ave. & Colt Dr./Oakwood Ave.



HCM Signalized Intersection Capacity Analysis

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 PM ALT1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	10	20	120	10	110	10	800	90	170	1110	10
Future Volume (vph)	30	10	20	120	10	110	10	800	90	170	1110	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0		4.0		4.5	4.0
Lane Util. Factor		1.00				1.00	1.00		0.95		1.00	0.95
Frt		0.95				1.00	0.85		0.98		1.00	1.00
Flt Protected		0.98				0.96	1.00		1.00		0.95	1.00
Satd. Flow (prot)		1766				1755	1583		3534		1770	3602
Flt Permitted		0.82				0.67	1.00		0.91		0.20	1.00
Satd. Flow (perm)		1483				1236	1583		3217		365	3602
Peak-hour factor, PHF	0.75	0.38	0.47	0.66	0.50	0.65	0.50	0.86	0.80	0.90	0.78	0.50
Adj. Flow (vph)	40	26	43	182	20	169	20	930	112	189	1423	20
RTOR Reduction (vph)	0	30	0	0	0	133	0	11	0	0	1	0
Lane Group Flow (vph)	0	79	0	0	202	36	0	1052	0	189	1442	0
Heavy Vehicles (%)	0%	0%	0%	4%	0%	2%	0%	0%	4%	2%	0%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4				4			2		1	2
Permitted Phases	4			4		4	2				2	
Actuated Green, G (s)		17.0			17.0	17.0		44.4		50.5	44.4	
Effective Green, g (s)		17.0			17.0	17.0		44.4		50.5	44.4	
Actuated g/C Ratio		0.21				0.21	0.21		0.55		0.63	0.55
Clearance Time (s)		4.0				4.0	4.0		4.0		4.5	4.0
Vehicle Extension (s)		4.0				4.0	4.0		4.0		3.0	4.0
Lane Grp Cap (vph)		315			262	336		1785		337	1999	
v/s Ratio Prot										c0.04	c0.40	
v/s Ratio Perm		0.05				c0.16	0.02		0.33		0.31	
v/c Ratio		0.25				0.77	0.11		0.59		0.56	0.72
Uniform Delay, d1		26.2				29.7	25.4		11.8		7.5	13.2
Progression Factor		1.00				1.00	1.00		0.76		1.00	1.00
Incremental Delay, d2		0.6				13.8	0.2		1.1		2.1	2.3
Delay (s)		26.8				43.5	25.6		10.0		9.7	15.5
Level of Service		C				D	C		B		A	B
Approach Delay (s)		26.8				35.3			10.0			14.8
Approach LOS		C				D			B			B
Intersection Summary												
HCM 2000 Control Delay		16.0			HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio		0.72										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)				12.5			
Intersection Capacity Utilization		78.4%			ICU Level of Service				D			
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 PM ALT1

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑		↑↓		↑	↑↓		↑	↑↓	↑
Traffic Volume (vph)	290	10	240	10	10	10	190	740	10	10	990	320
Future Volume (vph)	290	10	240	10	10	10	190	740	10	10	990	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0			0	315		0	200		0
Storage Lanes	1		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.955			0.998				0.850
Flt Protected	0.950	0.955			0.984		0.950			0.950		
Satd. Flow (prot)	1698	1708	1583	0	1785	0	1787	3568	0	1805	3610	1583
Flt Permitted	0.950	0.955			0.984		0.102			0.344		
Satd. Flow (perm)	1698	1708	1583	0	1785	0	192	3568	0	654	3610	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			261			11			2			348
Link Speed (mph)			30			30			30			30
Link Distance (ft)			189			135			656			374
Travel Time (s)			4.3			3.1			14.9			8.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	1%	1%	0%	0%	0%	2%
Adj. Flow (vph)	315	11	261	11	11	11	207	804	11	11	1076	348
Shared Lane Traffic (%)	48%											
Lane Group Flow (vph)	164	162	261	0	33	0	207	815	0	11	1076	348
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	8	8	8 1	7	7		1	6		5	2	2 8
Permitted Phases							6			2		
Detector Phase	8	8	8 1	7	7		1	6		5	2	2 8
Switch Phase												
Minimum Initial (s)	6.0	6.0		4.0	4.0		5.0	5.0		6.0		5.0
Minimum Split (s)	10.0	10.0		8.0	8.0		9.5	22.5		10.0		22.5
Total Split (s)	11.0	11.0		8.0	8.0		10.6	31.5		10.0		30.9
Total Split (%)	12.2%	12.2%		8.9%	8.9%		11.8%	35.0%		11.1%		34.3%
Maximum Green (s)	7.0	7.0		4.0	4.0		6.1	27.0		6.0		26.4
Yellow Time (s)	3.0	3.0		3.0	3.0		3.5	3.5		3.0		3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0		1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)	4.0	4.0		4.0			4.5	4.5		4.0		4.5
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		3.0
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								11.0			11.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	19.0	19.0	38.2		6.8		55.5	53.4		43.0	36.4	56.7
Actuated g/C Ratio	0.21	0.21	0.42		0.08		0.62	0.59		0.48	0.40	0.63
v/c Ratio	0.46	0.45	0.32		0.23		0.55	0.38		0.03	0.74	0.31
Control Delay	35.6	35.4	3.1		32.7		19.5	12.2		10.3	28.8	1.4
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	29.5
Total Split (s)	29.5
Total Split (%)	33%
Maximum Green (s)	25.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	4.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 PM ALT1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	35.6	35.4	3.1		32.7		19.5	12.2		10.3	28.8	1.4
LOS	D	D	A		C		B	B		B	C	A
Approach Delay		21.1			32.7			13.7			22.0	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	88	87	0		12		54	117		2	275	0
Queue Length 95th (ft)	145	144	39		40		133	238		11	#468	21
Internal Link Dist (ft)		109			55			576			294	
Turn Bay Length (ft)							315				200	
Base Capacity (vph)	358	360	821		144		378	2119		389	1458	1125
Starvation Cap Reductn	0	0	0		0		0	0		0	0	0
Spillback Cap Reductn	0	0	0		0		0	0		0	0	0
Storage Cap Reductn	0	0	0		0		0	0		0	0	0
Reduced v/c Ratio	0.46	0.45	0.32		0.23		0.55	0.38		0.03	0.74	0.31

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 51 (57%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 19.2

Intersection LOS: B

Intersection Capacity Utilization 63.7%

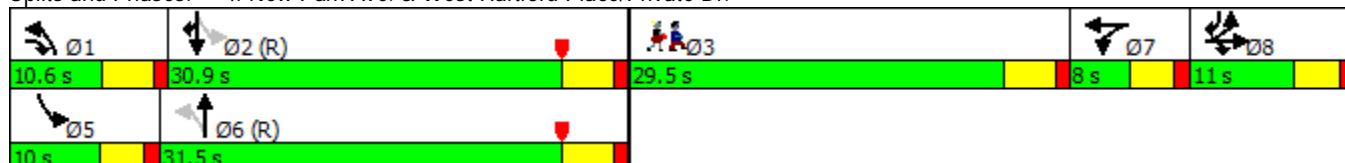
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: New Park Ave. & West Hartford Place/Private Dr.



Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor
2030 PM ALT1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑		↑↓		↑	↑↓		↑	↑↓	↑
Traffic Volume (vph)	290	10	240	10	10	10	190	740	10	10	990	320
Future Volume (vph)	290	10	240	10	10	10	190	740	10	10	990	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		4.5	4.5		4.0	4.5	4.5
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85		0.95		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		0.98		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1698	1709	1583		1785		1787	3567		1805	3610	1583
Flt Permitted	0.95	0.96	1.00		0.98		0.10	1.00		0.34	1.00	1.00
Satd. Flow (perm)	1698	1709	1583		1785		192	3567		654	3610	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	315	11	261	11	11	11	207	804	11	11	1076	348
RTOR Reduction (vph)	0	0	152	0	10	0	0	1	0	0	0	140
Lane Group Flow (vph)	164	162	109	0	23	0	207	814	0	11	1076	208
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	1%	1%	0%	0%	0%	2%
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	8	8	8 1	7	7		1	6		5	2	2 8
Permitted Phases							6			2		
Actuated Green, G (s)	19.0	19.0	37.7		4.6		53.9	48.6		36.0	34.7	53.7
Effective Green, g (s)	19.0	19.0	37.7		4.6		53.9	48.6		36.0	34.7	53.7
Actuated g/C Ratio	0.21	0.21	0.42		0.05		0.60	0.54		0.40	0.39	0.60
Clearance Time (s)	4.0	4.0			4.0		4.5	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	358	360	663		91		375	1926		278	1391	944
v/s Ratio Prot	c0.10	0.09	0.07		c0.01		c0.09	0.23		0.00	c0.30	0.13
v/s Ratio Perm							0.24			0.02		
v/c Ratio	0.46	0.45	0.16		0.25		0.55	0.42		0.04	0.77	0.22
Uniform Delay, d1	31.0	30.9	16.3		41.0		15.2	12.3		16.3	24.2	8.4
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.9	0.9	0.1		1.4		1.8	0.7		0.1	4.2	0.1
Delay (s)	31.9	31.8	16.4		42.5		17.0	13.0		16.4	28.5	8.5
Level of Service	C	C	B		D		B	B		B	C	A
Approach Delay (s)		25.0			42.5		13.8				23.5	
Approach LOS		C			D		B				C	
Intersection Summary												
HCM 2000 Control Delay		20.8			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			21.5				
Intersection Capacity Utilization		63.7%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 PM ALT1

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓		↑	↑	↑	↑	↑↓		↑	↑↓	
Traffic Volume (vph)	30	240	190	350	360	460	240	560	290	420	800	30
Future Volume (vph)	30	240	190	350	360	460	240	560	290	420	800	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	0		0	150		0	410		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.934				0.850		0.948			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3338	0	1752	1881	1615	1787	3377	0	1805	3515	0
Flt Permitted	0.513			0.261			0.221			0.950		
Satd. Flow (perm)	975	3338	0	481	1881	1615	416	3377	0	1805	3515	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		202				321		118			8	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		282			376			408			1063	
Travel Time (s)		6.4			8.5			9.3			24.2	
Peak Hour Factor	0.69	0.85	0.86	0.91	0.84	0.89	0.79	0.84	0.81	0.89	0.94	0.59
Heavy Vehicles (%)	0%	1%	1%	3%	1%	0%	1%	1%	2%	0%	2%	0%
Adj. Flow (vph)	43	282	221	385	429	517	304	667	358	472	851	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	503	0	385	429	517	304	1025	0	472	902	0
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6					
Detector Phase	7	4		3	8	8	1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	9.0		5.0	9.0	9.0	6.0	15.0		6.0	15.0	
Minimum Split (s)	9.5	14.0		9.5	14.0	14.0	10.5	20.1		10.5	20.1	
Total Split (s)	9.5	14.5		13.0	18.0	18.0	14.6	25.0		18.0	28.4	
Total Split (%)	11.9%	18.1%		16.3%	22.5%	22.5%	18.3%	31.3%		22.5%	35.5%	
Maximum Green (s)	5.0	9.5		9.0	13.0	13.0	10.6	19.9		14.0	23.3	
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.6		3.0	3.6	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes				Yes	
Vehicle Extension (s)	3.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)	16.7	9.5		33.0	24.9	42.9	31.6	19.9		14.0	23.3	
Actuated g/C Ratio	0.21	0.12		0.41	0.31	0.54	0.40	0.25		0.18	0.29	
v/c Ratio	0.16	0.88		0.78	0.73	0.51	0.88	1.10		1.50	0.88	
Control Delay	17.4	39.0		31.1	36.6	7.0	44.8	89.9		268.5	38.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	17.4	39.0		31.1	36.6	7.0	44.8	89.9		268.5	38.2	
LOS	B	D		C	D	A	D	F		F	D	
Approach Delay		37.3			23.5			79.5			117.3	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	9.5
Total Split (s)	9.5
Total Split (%)	12%
Maximum Green (s)	5.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 PM ALT1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			C			E			F	
Queue Length 50th (ft)	13	78		141	205	54	89	~287		~332	222	
Queue Length 95th (ft)	24	#143		#265	#344	137	#169	#363		#503	#330	
Internal Link Dist (ft)		202			296			328			983	
Turn Bay Length (ft)	50						150			410		
Base Capacity (vph)	273	574		492	584	1014	345	928		315	1029	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.16	0.88		0.78	0.73	0.51	0.88	1.10		1.50	0.88	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 26 (33%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.50

Intersection Signal Delay: 69.5

Intersection LOS: E

Intersection Capacity Utilization 95.2%

ICU Level of Service F

Analysis Period (min) 15

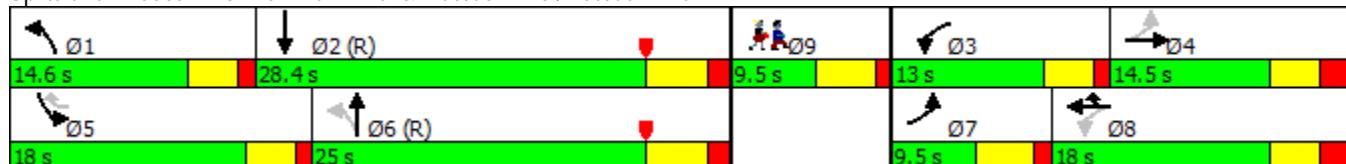
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: New Park Ave. & Flatbush Ave./Flatbush Ave.



Lane Group	Ø9
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor
2030 PM ALT1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓		↑	↑	↑	↑	↑↓		↑	↑↓	
Traffic Volume (vph)	30	240	190	350	360	460	240	560	290	420	800	30
Future Volume (vph)	30	240	190	350	360	460	240	560	290	420	800	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	3339		1752	1881	1615	1787	3375		1805	3513	
Flt Permitted	0.51	1.00		0.26	1.00	1.00	0.22	1.00		0.95	1.00	
Satd. Flow (perm)	974	3339		482	1881	1615	416	3375		1805	3513	
Peak-hour factor, PHF	0.69	0.85	0.86	0.91	0.84	0.89	0.79	0.84	0.81	0.89	0.94	0.59
Adj. Flow (vph)	43	282	221	385	429	517	304	667	358	472	851	51
RTOR Reduction (vph)	0	173	0	0	0	165	0	91	0	0	6	0
Lane Group Flow (vph)	43	330	0	385	429	352	304	934	0	472	896	0
Heavy Vehicles (%)	0%	1%	1%	3%	1%	0%	1%	1%	2%	0%	2%	0%
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6					
Actuated Green, G (s)	15.7	11.3		33.8	24.9	38.9	28.7	18.1		14.0	21.5	
Effective Green, g (s)	15.7	11.3		33.8	24.9	38.9	28.7	18.1		14.0	21.5	
Actuated g/C Ratio	0.20	0.14		0.42	0.31	0.49	0.36	0.23		0.18	0.27	
Clearance Time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	236	471		497	585	886	330	763		315	944	
v/s Ratio Prot	0.01	0.10	c0.18	0.23	0.12	0.12	c0.28		c0.26	c0.26		
v/s Ratio Perm	0.03		c0.15		0.09	0.21						
v/c Ratio	0.18	0.70	0.77	0.73	0.40	0.92	1.22		1.50	0.95		
Uniform Delay, d1	26.5	32.7		18.1	24.6	13.1	21.1	30.9		33.0	28.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	3.7		6.8	4.1	0.1	29.7	112.2		240.3	19.3	
Delay (s)	26.8	36.4		24.8	28.7	13.2	50.8	143.2		273.3	48.0	
Level of Service	C	D		C	C	B	D	F		F	D	
Approach Delay (s)		35.6			21.5			122.1			125.4	
Approach LOS		D			C			F			F	
Intersection Summary												
HCM 2000 Control Delay		83.6										F
HCM 2000 Volume to Capacity ratio		1.17										
Actuated Cycle Length (s)		80.0										23.1
Intersection Capacity Utilization		95.2%										F
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 PM ALT1

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑↑		↓↓		↑↑↑	↓↓		↑↑↑	↓↓	↑↑↑
Traffic Volume (vph)	20	0	810	10	0	0	580	460	10	0	540	10
Future Volume (vph)	20	0	810	10	0	0	580	460	10	0	540	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		80
Storage Lanes	1		2	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Frt			0.850					0.998				0.850
Flt Protected	0.950				0.950			0.974				
Satd. Flow (prot)	1805	0	2787	0	1805	0	0	3475	0	0	3574	1615
Flt Permitted	0.950				0.950			0.600				
Satd. Flow (perm)	1805	0	2787	0	1805	0	0	2141	0	0	3574	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			910					1				200
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		506			113			1063			446	
Travel Time (s)		11.5			2.6			24.2			10.1	
Peak Hour Factor	0.67	0.92	0.89	0.50	0.50	0.92	0.95	0.86	0.75	0.25	0.90	0.75
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	0%	0%	1%	0%
Adj. Flow (vph)	30	0	910	20	0	0	611	535	13	0	600	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	0	910	0	20	0	0	1159	0	0	600	13
Turn Type	Prot	custom		Split	NA		custom	NA			NA	Prot
Protected Phases	8	1	8	4	4			1	6		2	2
Permitted Phases								6			2	
Detector Phase	8	1	8	4	4		6	1	6		2	2
Switch Phase												
Minimum Initial (s)	10.0			5.0	5.0		15.0			15.0	15.0	15.0
Minimum Split (s)	15.0			24.1	24.1		21.3			21.3	21.3	21.3
Total Split (s)	24.1			24.1	24.1		33.9			21.9	21.9	21.9
Total Split (%)	23.2%			23.2%	23.2%		32.6%			21.0%	21.0%	21.0%
Maximum Green (s)	19.1			18.0	18.0		27.6			15.6	15.6	15.6
Yellow Time (s)	3.0			3.0	3.0		3.0			3.0	3.0	3.0
All-Red Time (s)	2.0			3.1	3.1		3.3			3.3	3.3	3.3
Lost Time Adjust (s)	0.0			0.0						0.0	0.0	
Total Lost Time (s)	5.0			6.1						6.3	6.3	
Lead/Lag				Lag	Lag				Lag	Lag	Lag	
Lead-Lag Optimize?				Yes	Yes				Yes	Yes	Yes	
Vehicle Extension (s)	2.0			2.0	2.0		3.0			3.0	3.0	3.0
Recall Mode	None			None	None		C-Max			C-Max	C-Max	C-Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	10.3			70.0		5.9		76.6			15.6	15.6
Actuated g/C Ratio	0.10			0.67		0.06		0.74			0.15	0.15
v/c Ratio	0.17			0.42		0.20		8.15dl			1.12	0.03
Control Delay	45.2			1.3		50.8		13.3			118.1	0.1
Queue Delay	0.0			0.0		0.0		0.0			0.0	0.0

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Fr _t		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	12.0	22.0
Total Split (s)	12.0	22.0
Total Split (%)	12%	21%
Maximum Green (s)	5.0	18.0
Yellow Time (s)	3.0	4.0
All-Red Time (s)	4.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	2.0	3.0
Recall Mode	None	None
Walk Time (s)		5.0
Flash Dont Walk (s)		12.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 PM ALT1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	45.2		1.3		50.8			13.3			118.1	0.1
LOS	D		A		D			B			F	A
Approach Delay		2.7			50.8			13.3			115.6	
Approach LOS		A			D			B			F	
Queue Length 50th (ft)	19		0		13			147			~243	0
Queue Length 95th (ft)	35		24		21			359			#355	0
Internal Link Dist (ft)		426			33			983			366	
Turn Bay Length (ft)												80
Base Capacity (vph)	331		2171		312			1575			535	412
Starvation Cap Reductn	0		0		0			0			0	0
Spillback Cap Reductn	0		0		0			0			0	0
Storage Cap Reductn	0		0		0			0			0	0
Reduced v/c Ratio	0.09		0.42		0.06			0.74			1.12	0.03

Intersection Summary

Area Type: Other

Cycle Length: 104.1

Actuated Cycle Length: 104.1

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow, Master Intersection

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.12

Intersection Signal Delay: 32.9

Intersection LOS: C

Intersection Capacity Utilization 70.4%

ICU Level of Service C

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

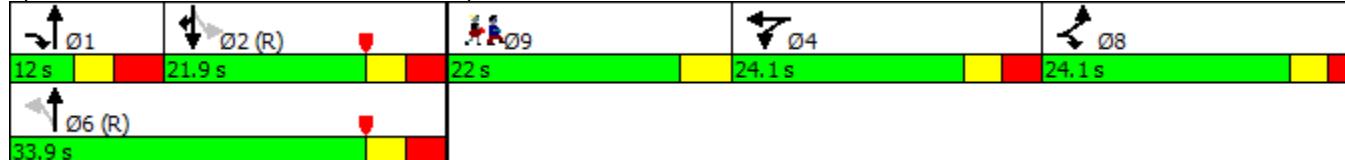
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: New Park Ave. & Prospect Ave./Private Dr.



Lane Group	Ø1	Ø9
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor
2030 PM ALT1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↓			↑↑		↑↑	↑↑	↑
Traffic Volume (vph)	20	0	810	10	0	0	580	460	10	0	540	10
Future Volume (vph)	20	0	810	10	0	0	580	460	10	0	540	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			7.0		6.1			7.0		6.3	6.3
Lane Util. Factor	1.00			0.88		1.00			0.95		0.95	1.00
Frt	1.00			0.85		1.00			1.00		1.00	0.85
Flt Protected	0.95			1.00		0.95			0.97		1.00	1.00
Satd. Flow (prot)	1805			2787		1805			3477		3574	1615
Flt Permitted	0.95			1.00		0.95			0.60		1.00	1.00
Satd. Flow (perm)	1805			2787		1805			2141		3574	1615
Peak-hour factor, PHF	0.67	0.92	0.89	0.50	0.50	0.92	0.95	0.86	0.75	0.25	0.90	0.75
Adj. Flow (vph)	30	0	910	20	0	0	611	535	13	0	600	13
RTOR Reduction (vph)	0	0	342	0	0	0	0	0	0	0	0	12
Lane Group Flow (vph)	30	0	568	0	20	0	0	1159	0	0	600	1
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	0%	0%	1%	0%
Turn Type	Prot		custom	Split	NA		custom	NA			NA	Prot
Protected Phases	8		1 8	4	4				1 6		2	2
Permitted Phases								6			2	
Actuated Green, G (s)	10.3		70.0		2.8			73.6			11.9	11.9
Effective Green, g (s)	10.3		65.0		2.8			73.6			11.9	11.9
Actuated g/C Ratio	0.10		0.62		0.03			0.71			0.11	0.11
Clearance Time (s)	5.0				6.1						6.3	6.3
Vehicle Extension (s)	2.0				2.0						3.0	3.0
Lane Grp Cap (vph)	178		1740		48			1513			408	184
v/s Ratio Prot	0.02		c0.20		c0.01						c0.17	0.00
v/s Ratio Perm								c0.54				
v/c Ratio	0.17		0.33		0.42			8.15dl			1.47	0.01
Uniform Delay, d1	43.0		9.2		49.8			9.7			46.1	40.9
Progression Factor	1.00		1.00		1.00			1.00			1.00	1.00
Incremental Delay, d2	0.2		0.0		2.1			2.1			224.8	0.1
Delay (s)	43.1		9.3		52.0			11.9			270.9	40.9
Level of Service	D		A		D			B			F	D
Approach Delay (s)		10.3			52.0			11.9			266.0	
Approach LOS		B			D			B			F	

Intersection Summary

HCM 2000 Control Delay	68.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	104.1	Sum of lost time (s)	28.4
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Appendix E

Intersection Capacity Analysis Worksheets
Alternative 1 Traffic Volumes
Saturday Peak Hour

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 Sat ALT1

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑	↑	
Traffic Volume (vph)	340	790	0	0	870	480	0	0	0	480	0	370
Future Volume (vph)	340	790	0	0	870	480	0	0	0	480	0	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	12	12	12	12	12	12	11	12	11
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850						0.868
Flt Protected	0.950									0.950		0.994
Satd. Flow (prot)	1668	3336	0	0	3574	1599	0	1900	0	1625	1540	0
Flt Permitted	0.148									0.950		0.994
Satd. Flow (perm)	260	3336	0	0	3574	1599	0	1900	0	1625	1540	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)												319
Link Speed (mph)	30				30			30				30
Link Distance (ft)	386				245			138				2131
Travel Time (s)	8.8				5.6			3.1				48.4
Peak Hour Factor	0.92	0.95	0.75	0.25	0.91	0.86	0.25	0.25	0.25	0.89	0.50	0.91
Heavy Vehicles (%)	1%	1%	67%	50%	1%	1%	0%	0%	33%	2%	100%	1%
Adj. Flow (vph)	370	832	0	0	956	558	0	0	0	539	0	407
Shared Lane Traffic (%)												10%
Lane Group Flow (vph)	370	832	0	0	956	558	0	0	0	485	461	0
Turn Type	D.P+P	NA			NA	pt+ov				Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2			2								
Detector Phase	1	1 2		2	2	2 4	5	5		4	4	
Switch Phase												
Minimum Initial (s)	5.0				15.0	15.0		5.0	5.0		5.0	5.0
Minimum Split (s)	9.0				22.9	22.9		13.0	13.0		13.0	13.0
Total Split (s)	10.0				35.0	35.0		10.0	10.0		35.0	35.0
Total Split (%)	8.9%				31.3%	31.3%		8.9%	8.9%		31.3%	31.3%
Maximum Green (s)	6.0				27.1	27.1		2.0	2.0		27.0	27.0
Yellow Time (s)	3.0				3.0	3.0		3.0	3.0		3.0	3.0
All-Red Time (s)	1.0				4.9	4.9		5.0	5.0		5.0	5.0
Lost Time Adjust (s)	0.0				0.0			0.0			0.0	0.0
Total Lost Time (s)	4.0				7.9			8.0			8.0	8.0
Lead/Lag	Lead				Lag	Lag				Lag	Lag	
Lead-Lag Optimize?	Yes				Yes	Yes				Yes	Yes	
Vehicle Extension (s)	1.5				2.5	2.5		1.5	1.5		1.5	1.5
Recall Mode	None				C-Max	C-Max		None	None		None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	47.0	51.0			27.1	84.1				49.0	49.0	
Actuated g/C Ratio	0.42	0.46			0.24	0.75				0.44	0.44	
v/c Ratio	1.19	0.55			1.11	0.47				0.68	0.54	
Control Delay	142.7	23.8			104.1	6.8				31.3	9.3	
Queue Delay	0.0	0.0			0.0	0.0				0.0	0.0	
Total Delay	142.7	23.8			104.1	6.8				31.3	9.3	
LOS	F	C			F	A				C	A	

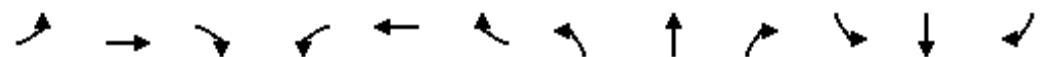
Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	22.0
Total Split (%)	20%
Maximum Green (s)	18.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	19.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 Sat ALT1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		60.4			68.3						20.6	
Approach LOS			E			E						C
Queue Length 50th (ft)	~268	222			~413	130				288	65	
Queue Length 95th (ft)	#458	283			#543	175				411	5	
Internal Link Dist (ft)		306			165			58			2051	
Turn Bay Length (ft)												
Base Capacity (vph)	310	1519			864	1200				710	853	
Starvation Cap Reductn	0	0			0	0				0	0	
Spillback Cap Reductn	0	0			0	0				0	0	
Storage Cap Reductn	0	0			0	0				0	0	
Reduced v/c Ratio	1.19	0.55			1.11	0.47				0.68	0.54	

Intersection Summary

Area Type: Other

Cycle Length: 112

Actuated Cycle Length: 112

Offset: 3.6 (3%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 53.4

Intersection LOS: D

Intersection Capacity Utilization 87.1%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: New Park Ave. & New Britain Ave.



Lane Group	Ø3
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 Sat ALT1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑↑		↑	↑	
Traffic Volume (vph)	340	790	0	0	870	480	0	0	0	480	0	370
Future Volume (vph)	340	790	0	0	870	480	0	0	0	480	0	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12	12	12	12	11	12	11
Total Lost time (s)	4.0	4.0			7.9	7.9				8.0	8.0	
Lane Util. Factor	1.00	0.95			0.95	1.00				0.95	0.95	
Frt	1.00	1.00			1.00	0.85				1.00	0.87	
Flt Protected	0.95	1.00			1.00	1.00				0.95	0.99	
Satd. Flow (prot)	1668	3336			3574	1599				1625	1540	
Flt Permitted	0.15	1.00			1.00	1.00				0.95	0.99	
Satd. Flow (perm)	259	3336			3574	1599				1625	1540	
Peak-hour factor, PHF	0.92	0.95	0.75	0.25	0.91	0.86	0.25	0.25	0.25	0.89	0.50	0.91
Adj. Flow (vph)	370	832	0	0	956	558	0	0	0	539	0	407
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	179	0
Lane Group Flow (vph)	370	832	0	0	956	558	0	0	0	485	282	0
Heavy Vehicles (%)	1%	1%	67%	50%	1%	1%	0%	0%	33%	2%	100%	1%
Turn Type	D.P+P	NA			NA	pt+ov				Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2		2									
Actuated Green, G (s)	43.1	47.1			27.1	84.0				49.0	49.0	
Effective Green, g (s)	43.1	47.1			27.1	84.0				49.0	49.0	
Actuated g/C Ratio	0.38	0.42			0.24	0.75				0.44	0.44	
Clearance Time (s)	4.0				7.9					8.0	8.0	
Vehicle Extension (s)	1.5				2.5					1.5	1.5	
Lane Grp Cap (vph)	300	1402			864	1199				710	673	
v/s Ratio Prot	c0.18	0.25			0.27	0.35				c0.30	0.18	
v/s Ratio Perm	c0.30											
v/c Ratio	1.23	0.59			1.11	0.47				0.68	0.42	
Uniform Delay, d1	31.5	25.1			42.5	5.4				25.3	21.7	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	130.5	0.5			64.1	0.1				2.2	0.2	
Delay (s)	162.0	25.5			106.5	5.5				27.4	21.8	
Level of Service	F	C			F	A				C	C	
Approach Delay (s)		67.5			69.3				0.0		24.7	
Approach LOS		E			E				A		C	
Intersection Summary												
HCM 2000 Control Delay		57.2			HCM 2000 Level of Service				E			
HCM 2000 Volume to Capacity ratio		1.08										
Actuated Cycle Length (s)		112.0			Sum of lost time (s)				31.9			
Intersection Capacity Utilization		87.1%			ICU Level of Service				E			
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 Sat ALT1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	200	110	100	720	780	260
Future Volume (vph)	200	110	100	720	780	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	1.00
Frt			0.850			0.850
Flt Protected	0.950			0.994		
Satd. Flow (prot)	1787	1615	0	3557	3574	1615
Flt Permitted	0.950			0.717		
Satd. Flow (perm)	1787	1615	0	2566	3574	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		143				295
Link Speed (mph)	30			30	30	
Link Distance (ft)	297			639	425	
Travel Time (s)	6.8			14.5	9.7	
Peak Hour Factor	0.94	0.77	0.88	0.81	0.88	0.88
Heavy Vehicles (%)	1%	0%	0%	1%	1%	0%
Adj. Flow (vph)	213	143	114	889	886	295
Shared Lane Traffic (%)						
Lane Group Flow (vph)	213	143	0	1003	886	295
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases				2		2
Detector Phase	4	4	1	1 2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		30.0	30.0
Minimum Split (s)	14.0	14.0	12.0		36.0	36.0
Total Split (s)	23.0	23.0	17.0		40.0	40.0
Total Split (%)	28.8%	28.8%	21.3%		50.0%	50.0%
Maximum Green (s)	17.0	17.0	13.0		34.0	34.0
Yellow Time (s)	4.0	4.0	3.0		4.0	4.0
All-Red Time (s)	2.0	2.0	1.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0
Recall Mode	None	None	None		C-Max	C-Max
Act Effct Green (s)	14.7	14.7		51.3	35.9	35.9
Actuated g/C Ratio	0.18	0.18		0.64	0.45	0.45
v/c Ratio	0.65	0.35		0.55	0.55	0.33
Control Delay	39.7	7.6		7.2	7.3	2.0
Queue Delay	0.0	0.0		0.0	0.1	0.0
Total Delay	39.7	7.6		7.2	7.5	2.0
LOS	D	A		A	A	A
Approach Delay	26.8			7.2	6.1	
Approach LOS	C			A	A	
Queue Length 50th (ft)	98	0		100	83	0
Queue Length 95th (ft)	164	29		122	117	18



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	217			559	345	
Turn Bay Length (ft)						
Base Capacity (vph)	379	455		1825	1604	888
Starvation Cap Reductn	0	0		0	127	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.56	0.31		0.55	0.60	0.33

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 76 (95%), Referenced to phase 2:NBSB and 6:, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 9.4

Intersection LOS: A

Intersection Capacity Utilization 72.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: New Park Ave. & Talcott Rd.



HCM Signalized Intersection Capacity Analysis
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 Sat ALT1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	200	110	100	720	780	260
Future Volume (vph)	200	110	100	720	780	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.99	1.00	1.00
Satd. Flow (prot)	1787	1615		3558	3574	1615
Flt Permitted	0.95	1.00		0.72	1.00	1.00
Satd. Flow (perm)	1787	1615		2566	3574	1615
Peak-hour factor, PHF	0.94	0.77	0.88	0.81	0.88	0.88
Adj. Flow (vph)	213	143	114	889	886	295
RTOR Reduction (vph)	0	117	0	0	0	163
Lane Group Flow (vph)	213	26	0	1003	886	132
Heavy Vehicles (%)	1%	0%	0%	1%	1%	0%
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases			2		2	
Actuated Green, G (s)	14.7	14.7		49.3	35.9	35.9
Effective Green, g (s)	14.7	14.7		49.3	35.9	35.9
Actuated g/C Ratio	0.18	0.18		0.62	0.45	0.45
Clearance Time (s)	6.0	6.0			6.0	6.0
Vehicle Extension (s)	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	328	296		1747	1603	724
v/s Ratio Prot	c0.12	0.02		c0.10	0.25	
v/s Ratio Perm			c0.26		0.08	
v/c Ratio	0.65	0.09		0.57	0.55	0.18
Uniform Delay, d1	30.3	27.1		9.1	16.2	13.2
Progression Factor	1.00	1.00		1.00	0.36	0.58
Incremental Delay, d2	4.9	0.2		0.6	1.1	0.5
Delay (s)	35.2	27.3		9.7	7.0	8.1
Level of Service	D	C		A	A	A
Approach Delay (s)	32.0			9.7	7.3	
Approach LOS	C			A	A	
Intersection Summary						
HCM 2000 Control Delay		11.7		HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio		0.59				
Actuated Cycle Length (s)		80.0		Sum of lost time (s)	16.0	
Intersection Capacity Utilization		72.2%		ICU Level of Service	C	
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 Sat ALT1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	0	60	0	150	0	860	60	180	980	10
Future Volume (vph)	10	0	0	60	0	150	0	860	60	180	980	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0		0	0		0	249		0
Storage Lanes	0			0		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Fr _t						0.850		0.990			0.998	
Flt Protected		0.950			0.950					0.950		
Satd. Flow (prot)	0	1805	0	0	1736	1583	0	3564	0	1770	3603	0
Flt Permitted		0.698			0.749					0.211		
Satd. Flow (perm)	0	1326	0	0	1368	1583	0	3564	0	393	3603	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					231			14			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		156			393			425			656	
Travel Time (s)		3.5			8.9			9.7			14.9	
Peak Hour Factor	0.75	0.38	0.47	0.66	0.50	0.65	0.50	0.86	0.80	0.90	0.78	0.50
Heavy Vehicles (%)	0%	0%	0%	4%	0%	2%	0%	0%	4%	2%	0%	0%
Adj. Flow (vph)	13	0	0	91	0	231	0	1000	75	200	1256	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	13	0	0	91	231	0	1075	0	200	1276	0
Turn Type	Perm	NA		Perm	NA	Perm		NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4		4				2		
Detector Phase	4	4		4	4	4		2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0		8.0		5.0	8.0	
Minimum Split (s)	12.0	12.0		12.0	12.0	12.0		12.0		9.5	12.0	
Total Split (s)	18.0	18.0		18.0	18.0	18.0		44.0		18.0	44.0	
Total Split (%)	22.5%	22.5%		22.5%	22.5%	22.5%		55.0%		22.5%	55.0%	
Maximum Green (s)	14.0	14.0		14.0	14.0	14.0		40.0		13.5	40.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0		3.0		3.5	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0		1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		4.0			4.0	4.0		4.0		4.5	4.0	
Lead/Lag								Lag		Lead	Lag	
Lead-Lag Optimize?								Yes		Yes	Yes	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0		4.0		3.0	4.0	
Recall Mode	None	None		None	None	None		C-Max		None	C-Max	
Act Effct Green (s)	11.3			11.3	11.3			49.0		55.7	49.0	
Actuated g/C Ratio	0.14			0.14	0.14			0.61		0.70	0.61	
v/c Ratio	0.07			0.47	0.55			0.49		0.50	0.58	
Control Delay	29.1			39.2	9.8			7.5		12.9	6.6	
Queue Delay	0.0			0.0	0.0			0.2		0.0	0.0	
Total Delay	29.1			39.2	9.8			7.7		12.9	6.6	
LOS	C			D	A			A		B	A	
Approach Delay	29.1			18.1				7.7		7.4		

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 Sat ALT1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			B			A			A	
Queue Length 50th (ft)		6			42	0		117		32	63	
Queue Length 95th (ft)		8			44	12		147		m60	95	
Internal Link Dist (ft)		76			313			345			576	
Turn Bay Length (ft)											249	
Base Capacity (vph)		232			239	467		2188		526	2208	
Starvation Cap Reductn		0			0	0		406		0	0	
Spillback Cap Reductn		0			0	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.06			0.38	0.49		0.60		0.38	0.58	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 66 (83%), Referenced to phase 2:NBSB and 6:, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 8.8

Intersection LOS: A

Intersection Capacity Utilization 53.3%

ICU Level of Service A

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: New Park Ave. & Colt Dr./Oakwood Ave.



HCM Signalized Intersection Capacity Analysis

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 Sat ALT1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	0	60	0	150	0	860	60	180	980	10
Future Volume (vph)	10	0	0	60	0	150	0	860	60	180	980	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)												
	4.0				4.0		4.0			4.5		4.0
Lane Util. Factor		1.00				1.00	1.00		0.95	1.00	0.95	
Frt		1.00				1.00	0.85		0.99	1.00	1.00	
Flt Protected		0.95				0.95	1.00		1.00	0.95	1.00	
Satd. Flow (prot)		1805				1736	1583		3562	1770	3602	
Flt Permitted		0.70				0.75	1.00		1.00	0.21	1.00	
Satd. Flow (perm)		1326				1368	1583		3562	392	3602	
Peak-hour factor, PHF	0.75	0.38	0.47	0.66	0.50	0.65	0.50	0.86	0.80	0.90	0.78	0.50
Adj. Flow (vph)	13	0	0	91	0	231	0	1000	75	200	1256	20
RTOR Reduction (vph)	0	0	0	0	0	198	0	5	0	0	1	0
Lane Group Flow (vph)	0	13	0	0	91	33	0	1070	0	200	1275	0
Heavy Vehicles (%)	0%	0%	0%	4%	0%	2%	0%	0%	4%	2%	0%	0%
Turn Type	Perm	NA		Perm	NA	Perm		NA		pm+pt	NA	
Protected Phases		4				4			2		1	2
Permitted Phases	4			4		4					2	
Actuated Green, G (s)	11.3			11.3	11.3		49.0		56.2	49.0		
Effective Green, g (s)	11.3			11.3	11.3		49.0		56.2	49.0		
Actuated g/C Ratio	0.14			0.14	0.14		0.61		0.70	0.61		
Clearance Time (s)	4.0			4.0	4.0		4.0		4.5	4.0		
Vehicle Extension (s)	4.0			4.0	4.0		4.0		3.0	4.0		
Lane Grp Cap (vph)	187			193	223		2181		399	2206		
v/s Ratio Prot							0.30		c0.05	c0.35		
v/s Ratio Perm	0.01			c0.07	0.02				0.31			
v/c Ratio	0.07			0.47	0.15		0.49		0.50	0.58		
Uniform Delay, d1	29.8			31.6	30.1		8.6		5.1	9.3		
Progression Factor	1.00			1.00	1.00		0.72		2.61	0.55		
Incremental Delay, d2	0.2			2.5	0.4		0.7		0.8	0.9		
Delay (s)	30.0			34.1	30.5		6.9		14.1	6.0		
Level of Service	C			C	C		A		B	A		
Approach Delay (s)	30.0			31.5			6.9			7.1		
Approach LOS	C			C			A			A		
Intersection Summary												
HCM 2000 Control Delay	9.8			HCM 2000 Level of Service			A					
HCM 2000 Volume to Capacity ratio	0.55											
Actuated Cycle Length (s)	80.0			Sum of lost time (s)			12.5					
Intersection Capacity Utilization	53.3%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 Sat ALT1

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑		↑↓		↑	↑↓		↑	↑↓	↑
Traffic Volume (vph)	380	10	370	10	10	10	320	690	20	10	720	430
Future Volume (vph)	380	10	370	10	10	10	320	690	20	10	720	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	315		0	200		0
Storage Lanes	1		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.955			0.996				0.850
Flt Protected	0.950	0.955			0.984		0.950			0.950		
Satd. Flow (prot)	1698	1708	1583	0	1785	0	1787	3561	0	1805	3610	1583
Flt Permitted	0.950	0.955			0.984		0.194			0.359		
Satd. Flow (perm)	1698	1708	1583	0	1785	0	365	3561	0	682	3610	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			402			11			3			467
Link Speed (mph)			30			30			30			30
Link Distance (ft)			189			135			656			374
Travel Time (s)			4.3			3.1			14.9			8.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	1%	1%	0%	0%	0%	2%
Adj. Flow (vph)	413	11	402	11	11	11	348	750	22	11	783	467
Shared Lane Traffic (%)	49%											
Lane Group Flow (vph)	211	213	402	0	33	0	348	772	0	11	783	467
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	8	8	8 1	7	7		1	6		5	2	2 8
Permitted Phases							6			2		
Detector Phase	8	8	8 1	7	7		1	6		5	2	2 8
Switch Phase												
Minimum Initial (s)	6.0	6.0		4.0	4.0		5.0	5.0		6.0		5.0
Minimum Split (s)	10.0	10.0		8.0	8.0		9.5	22.5		10.0		22.5
Total Split (s)	10.0	10.0		8.0	8.0		9.5	22.5		10.0		23.0
Total Split (%)	12.5%	12.5%		10.0%	10.0%		11.9%	28.1%		12.5%		28.8%
Maximum Green (s)	6.0	6.0		4.0	4.0		5.0	18.0		6.0		18.5
Yellow Time (s)	3.0	3.0		3.0	3.0		3.5	3.5		3.0		3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0		1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)	4.0	4.0		4.0			4.5	4.5		4.0		4.5
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		3.0
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								11.0			11.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	24.7	24.7	48.2		6.6		42.0	39.9		25.1	18.5	45.4
Actuated g/C Ratio	0.31	0.31	0.60		0.08		0.52	0.50		0.31	0.23	0.57
v/c Ratio	0.40	0.40	0.36		0.21		0.66	0.43		0.04	0.94	0.42
Control Delay	25.2	25.2	2.2		28.4		34.2	17.7		10.8	41.8	1.4
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	29.5
Total Split (s)	29.5
Total Split (%)	37%
Maximum Green (s)	25.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	4.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 Sat ALT1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	25.2	25.2	2.2		28.4		34.2	17.7		10.8	41.8	1.4
LOS	C	C	A		C		C	B		B	D	A
Approach Delay		14.0			28.4			22.9			26.6	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	91	92	0		10		131	105		2	194	0
Queue Length 95th (ft)	148	149	41		36		#303	184		m4	m#292	m11
Internal Link Dist (ft)		109			55			576			294	
Turn Bay Length (ft)							315				200	
Base Capacity (vph)	524	527	1114		157		529	1777		300	834	1100
Starvation Cap Reductn	0	0	0		0		0	0		0	0	0
Spillback Cap Reductn	0	0	0		0		0	0		0	0	0
Storage Cap Reductn	0	0	0		0		0	0		0	0	0
Reduced v/c Ratio	0.40	0.40	0.36		0.21		0.66	0.43		0.04	0.94	0.42

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 51 (64%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 22.1

Intersection LOS: C

Intersection Capacity Utilization 65.9%

ICU Level of Service C

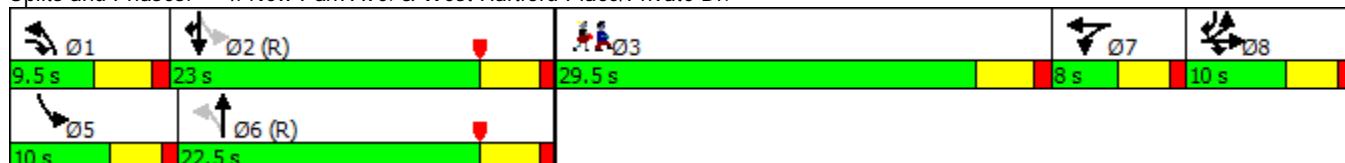
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: New Park Ave. & West Hartford Place/Private Dr.



Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor
2030 Sat ALT1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑		↑↓		↑	↑↓		↑	↑↓	↑
Traffic Volume (vph)	380	10	370	10	10	10	320	690	20	10	720	430
Future Volume (vph)	380	10	370	10	10	10	320	690	20	10	720	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		4.5	4.5		4.0	4.5	4.5
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85		0.95		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00		0.98		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1698	1707	1583		1785		1787	3560		1805	3610	1583
Flt Permitted	0.95	0.95	1.00		0.98		0.19	1.00		0.36	1.00	1.00
Satd. Flow (perm)	1698	1707	1583		1785		365	3560		682	3610	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	413	11	402	11	11	11	348	750	22	11	783	467
RTOR Reduction (vph)	0	0	162	0	11	0	0	2	0	0	0	229
Lane Group Flow (vph)	211	213	240	0	22	0	348	770	0	11	783	238
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	1%	1%	0%	0%	0%	2%
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	8	8	8 1	7	7		1	6		5	2	2 8
Permitted Phases							6			2		
Actuated Green, G (s)	24.7	24.7	47.7		3.2		39.6	34.3		17.4	16.1	40.8
Effective Green, g (s)	24.7	24.7	47.7		3.2		39.6	34.3		17.4	16.1	40.8
Actuated g/C Ratio	0.31	0.31	0.60		0.04		0.50	0.43		0.22	0.20	0.51
Clearance Time (s)	4.0	4.0			4.0		4.5	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	524	527	943		71		518	1526		166	726	807
v/s Ratio Prot	0.12	c0.12	0.15		c0.01		c0.16	0.22		0.00	c0.22	0.15
v/s Ratio Perm							0.17			0.01		
v/c Ratio	0.40	0.40	0.25		0.32		0.67	0.50		0.07	1.08	0.30
Uniform Delay, d1	21.8	21.8	7.7		37.3		14.8	16.7		24.6	31.9	11.3
Progression Factor	1.00	1.00	1.00		1.00		2.06	1.13		0.84	0.85	0.99
Incremental Delay, d2	0.5	0.5	0.1		2.6		3.0	1.1		0.1	50.8	0.1
Delay (s)	22.3	22.3	7.8		39.9		33.5	19.9		20.8	78.0	11.3
Level of Service	C	C	A		D		C	B		C	E	B
Approach Delay (s)		15.3			39.9			24.1			52.8	
Approach LOS		B			D			C			D	
Intersection Summary												
HCM 2000 Control Delay		33.2			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.71										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			21.5				
Intersection Capacity Utilization		65.9%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 Sat ALT1

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑	↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	30	170	240	380	220	450	220	550	320	400	600	20
Future Volume (vph)	30	170	240	380	220	450	220	550	320	400	600	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	0		0	150		0	410		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.913				0.850		0.944			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3263	0	1752	1881	1615	1787	3362	0	1805	3514	0
Flt Permitted	0.597			0.256			0.277			0.950		
Satd. Flow (perm)	1134	3263	0	472	1881	1615	521	3362	0	1805	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		279				344		145			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		282			376			408			1063	
Travel Time (s)		6.4			8.5			9.3			24.2	
Peak Hour Factor	0.69	0.85	0.86	0.91	0.84	0.89	0.79	0.84	0.81	0.89	0.94	0.59
Heavy Vehicles (%)	0%	1%	1%	3%	1%	0%	1%	1%	2%	0%	2%	0%
Adj. Flow (vph)	43	200	279	418	262	506	278	655	395	449	638	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	479	0	418	262	506	278	1050	0	449	672	0
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6					
Detector Phase	7	4		3	8	8	1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	9.0		5.0	9.0	9.0	6.0	15.0		6.0	15.0	
Minimum Split (s)	9.5	14.0		9.5	14.0	14.0	10.5	20.1		10.5	20.1	
Total Split (s)	9.5	15.5		13.0	19.0	19.0	16.4	23.0		19.0	25.6	
Total Split (%)	11.9%	19.4%		16.3%	23.8%	23.8%	20.5%	28.8%		23.8%	32.0%	
Maximum Green (s)	5.0	10.5		9.0	14.0	14.0	12.4	17.9		15.0	20.5	
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.6		3.0	3.6	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes				Yes	
Vehicle Extension (s)	3.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)	16.9	9.7		33.2	25.2	44.9	30.2	17.9		15.8	22.4	
Actuated g/C Ratio	0.21	0.12		0.42	0.32	0.56	0.38	0.22		0.20	0.28	
v/c Ratio	0.15	0.75		0.85	0.44	0.48	0.74	1.22		1.26	0.68	
Control Delay	16.8	21.8		36.9	26.4	5.6	28.5	133.8		170.3	30.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	16.8	21.8		36.9	26.4	5.6	28.5	133.8		170.3	30.0	
LOS	B	C		D	C	A	C	F		F	C	
Approach Delay		21.4			21.2			111.8			86.2	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	9.5
Total Split (s)	9.5
Total Split (%)	12%
Maximum Green (s)	5.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 Sat ALT1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			C			F			F	
Queue Length 50th (ft)	13	50		156	112	42	89	~323		~286	158	
Queue Length 95th (ft)	23	87		#302	171	110	137	#377		#464	222	
Internal Link Dist (ft)		202			296			328			983	
Turn Bay Length (ft)	50						150			410		
Base Capacity (vph)	295	670		491	591	1057	400	864		355	989	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.15	0.71		0.85	0.44	0.48	0.69	1.22		1.26	0.68	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 26 (33%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.26

Intersection Signal Delay: 67.7

Intersection LOS: E

Intersection Capacity Utilization 96.2%

ICU Level of Service F

Analysis Period (min) 15

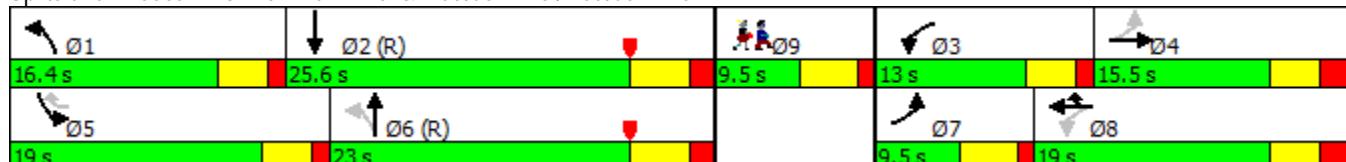
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: New Park Ave. & Flatbush Ave./Flatbush Ave.



Lane Group	Ø9
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor
2030 Sat ALT1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘		↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗		↑ ↗	↑ ↘	
Traffic Volume (vph)	30	170	240	380	220	450	220	550	320	400	600	20
Future Volume (vph)	30	170	240	380	220	450	220	550	320	400	600	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	0.94		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	3262		1752	1881	1615	1787	3360		1805	3516	
Flt Permitted	0.60	1.00		0.26	1.00	1.00	0.28	1.00		0.95	1.00	
Satd. Flow (perm)	1135	3262		473	1881	1615	521	3360		1805	3516	
Peak-hour factor, PHF	0.69	0.85	0.86	0.91	0.84	0.89	0.79	0.84	0.81	0.89	0.94	0.59
Adj. Flow (vph)	43	200	279	418	262	506	278	655	395	449	638	34
RTOR Reduction (vph)	0	239	0	0	0	168	0	116	0	0	4	0
Lane Group Flow (vph)	43	240	0	418	262	338	278	934	0	449	668	0
Heavy Vehicles (%)	0%	1%	1%	3%	1%	0%	1%	1%	2%	0%	2%	0%
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6					
Actuated Green, G (s)	16.0	11.6		34.1	25.2	41.0	27.2	16.0		15.8	20.6	
Effective Green, g (s)	16.0	11.6		34.1	25.2	41.0	27.2	16.0		15.8	20.6	
Actuated g/C Ratio	0.20	0.14		0.43	0.31	0.51	0.34	0.20		0.20	0.26	
Clearance Time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	263	472		497	592	928	354	672		356	905	
v/s Ratio Prot	0.01	0.07		c0.19	0.14	0.11	0.11	c0.28		c0.25	0.19	
v/s Ratio Perm	0.02			c0.16		0.09	0.16					
v/c Ratio	0.16	0.51		0.84	0.44	0.36	0.79	1.39		1.26	0.74	
Uniform Delay, d1	26.2	31.6		18.2	21.8	11.7	20.9	32.0		32.1	27.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.12	1.02		1.00	1.00	
Incremental Delay, d2	0.3	0.3		11.7	0.2	0.1	9.6	184.1		138.3	5.3	
Delay (s)	26.5	31.9		29.9	22.0	11.8	33.0	216.7		170.4	32.6	
Level of Service	C	C		C	C	B	C	F		F	C	
Approach Delay (s)		31.4			20.4			178.2			87.8	
Approach LOS		C			C			F			F	
Intersection Summary												
HCM 2000 Control Delay		90.4										F
HCM 2000 Volume to Capacity ratio		1.23										
Actuated Cycle Length (s)		80.0										23.1
Intersection Capacity Utilization		96.2%										F
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 Sat ALT1

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	0	590	0	0	10	510	470	0	10	430	10
Future Volume (vph)	20	0	590	0	0	10	510	470	0	10	430	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		80
Storage Lanes	1		2	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Fr _t			0.850		0.865							0.850
Flt Protected	0.950							0.976				0.996
Satd. Flow (prot)	1805	0	2787	0	1644	0	0	3488	0	0	3563	1615
Flt Permitted	0.950							0.588				0.758
Satd. Flow (perm)	1805	0	2787	0	1644	0	0	2102	0	0	2711	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			663		657							200
Link Speed (mph)		30			30			30				30
Link Distance (ft)		506			113			1063				446
Travel Time (s)		11.5			2.6			24.2				10.1
Peak Hour Factor	0.67	0.92	0.89	0.50	0.50	0.92	0.95	0.86	0.75	0.25	0.90	0.75
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	0%	0%	1%	0%
Adj. Flow (vph)	30	0	663	0	0	11	537	547	0	40	478	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	0	663	0	11	0	0	1084	0	0	518	13
Turn Type	Prot		custom		NA		custom	NA		Perm	NA	Prot
Protected Phases	8		1 8	4	4			1 6			2	2
Permitted Phases								6			2	
Detector Phase	8		1 8	4	4		6	1 6		2	2	2
Switch Phase												
Minimum Initial (s)	10.0			5.0	5.0		15.0			15.0	15.0	15.0
Minimum Split (s)	15.0			24.1	24.1		21.3			21.3	21.3	21.3
Total Split (s)	24.1			24.1	24.1		33.9			21.9	21.9	21.9
Total Split (%)	23.2%			23.2%	23.2%		32.6%			21.0%	21.0%	21.0%
Maximum Green (s)	19.1			18.0	18.0		27.6			15.6	15.6	15.6
Yellow Time (s)	3.0			3.0	3.0		3.0			3.0	3.0	3.0
All-Red Time (s)	2.0			3.1	3.1		3.3			3.3	3.3	3.3
Lost Time Adjust (s)	0.0			0.0						0.0	0.0	
Total Lost Time (s)	5.0			6.1						6.3	6.3	
Lead/Lag				Lag	Lag				Lag	Lag	Lag	
Lead-Lag Optimize?				Yes	Yes				Yes	Yes	Yes	
Vehicle Extension (s)	2.0			2.0	2.0		3.0			3.0	3.0	3.0
Recall Mode	None			None	None		C-Max			C-Max	C-Max	C-Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	10.0		73.0		5.0		79.9			15.6	15.6	
Actuated g/C Ratio	0.10		0.70		0.05		0.77			0.15	0.15	
v/c Ratio	0.17		0.31		0.02		7.07dl			1.28	0.03	
Control Delay	46.0		1.0		0.0		9.3			179.6	0.1	
Queue Delay	0.0		0.0		0.0		0.0			0.0	0.0	

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Fr _t		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	12.0	22.0
Total Split (s)	12.0	22.0
Total Split (%)	12%	21%
Maximum Green (s)	5.0	18.0
Yellow Time (s)	3.0	4.0
All-Red Time (s)	4.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	2.0	3.0
Recall Mode	None	None
Walk Time (s)		5.0
Flash Dont Walk (s)		12.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 Sat ALT1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	46.0		1.0		0.0			9.3			179.6	0.1
LOS	D		A		A			A			F	A
Approach Delay		2.9						9.3			175.2	
Approach LOS		A						A			F	
Queue Length 50th (ft)	19		0		0			131			~230	0
Queue Length 95th (ft)	35		21		0			280			#337	0
Internal Link Dist (ft)		426			33			983			366	
Turn Bay Length (ft)												80
Base Capacity (vph)	331		2152		827			1612			406	412
Starvation Cap Reductn	0		0		0			0			0	0
Spillback Cap Reductn	0		0		0			0			0	0
Storage Cap Reductn	0		0		0			0			0	0
Reduced v/c Ratio	0.09		0.31		0.01			0.67			1.28	0.03

Intersection Summary

Area Type: Other

Cycle Length: 104.1

Actuated Cycle Length: 104.1

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow, Master Intersection

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.28

Intersection Signal Delay: 45.3 Intersection LOS: D

Intersection Capacity Utilization 62.9% ICU Level of Service B

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

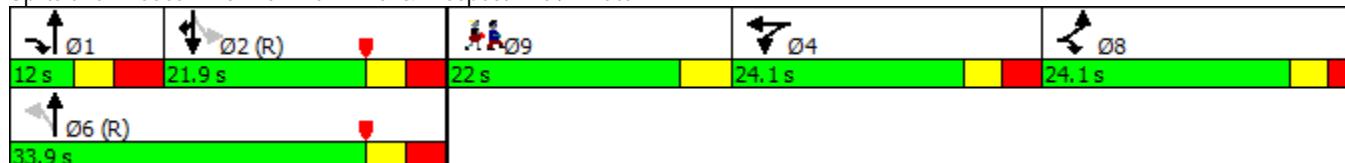
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: New Park Ave. & Prospect Ave./Private Dr.



Lane Group	Ø1	Ø9
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 Sat ALT1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↓			↑↑			↑↑	↑
Traffic Volume (vph)	20	0	590	0	0	10	510	470	0	10	430	10
Future Volume (vph)	20	0	590	0	0	10	510	470	0	10	430	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		7.0		6.1			7.0			6.3	6.3
Lane Util. Factor	1.00		0.88		1.00			0.95			0.95	1.00
Frt	1.00		0.85		0.86			1.00			1.00	0.85
Flt Protected	0.95		1.00		1.00			0.98			1.00	1.00
Satd. Flow (prot)	1805		2787		1644			3488			3563	1615
Flt Permitted	0.95		1.00		1.00			0.59			0.76	1.00
Satd. Flow (perm)	1805		2787		1644			2101			2710	1615
Peak-hour factor, PHF	0.67	0.92	0.89	0.50	0.50	0.92	0.95	0.86	0.75	0.25	0.90	0.75
Adj. Flow (vph)	30	0	663	0	0	11	537	547	0	40	478	13
RTOR Reduction (vph)	0	0	230	0	11	0	0	0	0	0	0	12
Lane Group Flow (vph)	30	0	433	0	0	0	0	1084	0	0	518	1
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	0%	0%	1%	0%
Turn Type	Prot		custom		NA		custom	NA		Perm	NA	Prot
Protected Phases	8		1 8	4	4			1 6			2	2
Permitted Phases							6			2		
Actuated Green, G (s)	10.0		73.0		1.0			75.7			10.7	10.7
Effective Green, g (s)	10.0		68.0		1.0			75.7			10.7	10.7
Actuated g/C Ratio	0.10		0.65		0.01			0.73			0.10	0.10
Clearance Time (s)	5.0				6.1						6.3	6.3
Vehicle Extension (s)	2.0				2.0						3.0	3.0
Lane Grp Cap (vph)	173		1820		15			1527			278	165
v/s Ratio Prot	0.02		c0.16		c0.00							0.00
v/s Ratio Perm							c0.52			c0.19		
v/c Ratio	0.17		0.24		0.01			7.07dl			1.86	0.01
Uniform Delay, d1	43.3		7.4		51.1			8.0			46.7	41.9
Progression Factor	1.00		1.00		1.00			1.00			1.00	1.00
Incremental Delay, d2	0.2		0.0		0.1			1.3			402.0	0.1
Delay (s)	43.4		7.4		51.1			9.3			448.7	42.0
Level of Service	D		A		D			A			F	D
Approach Delay (s)		9.0			51.1			9.3			438.7	
Approach LOS		A			D			A			F	

Intersection Summary

HCM 2000 Control Delay	107.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	104.1	Sum of lost time (s)	28.4
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Appendix F

Intersection Capacity Analysis Worksheets
Alternative 2 Traffic Volumes
Morning Peak Hour

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 AM ALT2 C

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↓			↑↑	↑		↑↓		↑	↓	
Traffic Volume (vph)	640	860	20	10	630	360	20	0	0	300	10	190
Future Volume (vph)	640	860	20	10	630	360	20	0	0	300	10	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	12	12	12	12	12	12	11	12	11
Storage Length (ft)	0		0	0		0	0		0	250		0
Storage Lanes	1		0	0		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Fr _t		0.989				0.850					0.886	
Flt Protected	0.950				0.997			0.950		0.950	0.994	
Satd. Flow (prot)	1652	3213	0	0	3406	1599	0	1805	0	1625	1551	0
Flt Permitted	0.123				0.790			0.950		0.950	0.994	
Satd. Flow (perm)	214	3213	0	0	2698	1599	0	1805	0	1625	1551	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		8									89	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		386			245			138			829	
Travel Time (s)		8.8			5.6			3.1			18.8	
Peak Hour Factor	0.94	0.93	0.27	0.25	0.87	0.85	0.50	0.25	0.25	0.79	0.25	0.76
Heavy Vehicles (%)	2%	4%	0%	0%	6%	1%	0%	0%	0%	2%	0%	3%
Adj. Flow (vph)	681	925	74	40	724	424	40	0	0	380	40	250
Shared Lane Traffic (%)										10%		
Lane Group Flow (vph)	681	999	0	0	764	424	0	40	0	342	328	0
Turn Type	D.P+P	NA		Perm	NA	pt+ov	Split	NA		Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2		2									
Detector Phase	1	1 2		2	2	2 4	5	5		4	4	
Switch Phase												
Minimum Initial (s)	5.0			15.0	15.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5			22.9	22.9		13.0	13.0		13.0	13.0	
Total Split (s)	36.0			42.0	42.0		13.0	13.0		29.0	29.0	
Total Split (%)	24.0%			28.0%	28.0%		8.7%	8.7%		19.3%	19.3%	
Maximum Green (s)	32.0			34.1	34.1		5.0	5.0		21.0	21.0	
Yellow Time (s)	3.0			3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0			4.9	4.9		5.0	5.0		5.0	5.0	
Lost Time Adjust (s)	0.0				0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.0				7.9			8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag				Lag	Lag		
Lead-Lag Optimize?	Yes			Yes	Yes				Yes	Yes		
Vehicle Extension (s)	1.5			2.5	2.5		1.5	1.5		1.5	1.5	
Recall Mode	None			C-Max	C-Max		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	72.8	76.8			34.1	91.0		6.9		48.9	48.9	
Actuated g/C Ratio	0.49	0.51			0.23	0.61		0.05		0.33	0.33	
v/c Ratio	1.56	0.61			1.25	0.44		0.48		0.65	0.58	
Control Delay	293.6	28.2			170.8	17.8		88.7		50.3	35.1	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	20%
Maximum Green (s)	26.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	19.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 AM ALT2 C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Total Delay	293.6	28.2		170.8	17.8		88.7		50.3	35.1		
LOS	F	C		F	B		F		D	D		
Approach Delay		135.8			116.2			88.7			42.8	
Approach LOS		F			F			F			D	
Queue Length 50th (ft)	~919	367		~488	215		39		303	207		
Queue Length 95th (ft)	#1169	442		#589	271		22		355	21		
Internal Link Dist (ft)		306			165			58			749	
Turn Bay Length (ft)											250	
Base Capacity (vph)	437	1649			613	969		83		529	565	
Starvation Cap Reductn	0	0			0	0		0		0	0	
Spillback Cap Reductn	0	0			0	0		0		0	0	
Storage Cap Reductn	0	0			0	0		0		0	0	
Reduced v/c Ratio	1.56	0.61			1.25	0.44		0.48		0.65	0.58	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.56

Intersection Signal Delay: 111.4

Intersection LOS: F

Intersection Capacity Utilization 86.4%

ICU Level of Service E

Analysis Period (min) 15

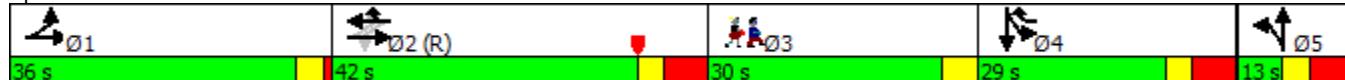
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: New Park Ave. & New Britain Ave.



Lane Group	Ø3
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 AM ALT2 C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑	↑	
Traffic Volume (vph)	640	860	20	10	630	360	20	0	0	300	10	190
Future Volume (vph)	640	860	20	10	630	360	20	0	0	300	10	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12	12	12	12	11	12	11
Total Lost time (s)	4.0	4.0			7.9	7.9		8.0		8.0	8.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.95	0.95	
Frt	1.00	0.99			1.00	0.85		1.00		1.00	0.89	
Flt Protected	0.95	1.00			1.00	1.00		0.95		0.95	0.99	
Satd. Flow (prot)	1652	3213			3407	1599		1805		1625	1550	
Flt Permitted	0.12	1.00			0.79	1.00		0.95		0.95	0.99	
Satd. Flow (perm)	214	3213			2698	1599		1805		1625	1550	
Peak-hour factor, PHF	0.94	0.93	0.27	0.25	0.87	0.85	0.50	0.25	0.25	0.79	0.25	0.76
Adj. Flow (vph)	681	925	74	40	724	424	40	0	0	380	40	250
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	60	0
Lane Group Flow (vph)	681	995	0	0	764	424	0	40	0	342	268	0
Heavy Vehicles (%)	2%	4%	0%	0%	6%	1%	0%	0%	0%	2%	0%	3%
Turn Type	D.P+P	NA		Perm	NA	pt+ov	Split	NA		Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2			2								
Actuated Green, G (s)	67.3	71.3			32.5	89.3		5.9		48.9	48.9	
Effective Green, g (s)	67.3	71.3			32.5	89.3		5.9		48.9	48.9	
Actuated g/C Ratio	0.45	0.48			0.22	0.60		0.04		0.33	0.33	
Clearance Time (s)	4.0				7.9			8.0		8.0	8.0	
Vehicle Extension (s)	1.5				2.5			1.5		1.5	1.5	
Lane Grp Cap (vph)	429	1527			584	951		70		529	505	
v/s Ratio Prot	c0.37	0.31				0.27		c0.02		c0.21	0.17	
v/s Ratio Perm	c0.34				0.28							
v/c Ratio	1.59	0.65			1.31	0.45		0.57		0.65	0.53	
Uniform Delay, d1	46.4	29.9			58.8	16.7		70.8		43.2	41.2	
Progression Factor	1.00	1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	275.2	0.8			150.7	0.1		6.8		2.0	0.5	
Delay (s)	321.6	30.7			209.5	16.8		77.6		45.2	41.7	
Level of Service	F	C			F	B		E		D	D	
Approach Delay (s)		148.6			140.7			77.6			43.5	
Approach LOS		F			F			E			D	
Intersection Summary												
HCM 2000 Control Delay		125.5			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.20										
Actuated Cycle Length (s)		150.0			Sum of lost time (s)			31.9				
Intersection Capacity Utilization		86.4%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 AM ALT2 C



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑		↔	↑	↑
Traffic Volume (vph)	200	110	120	890	410	150
Future Volume (vph)	200	110	120	890	410	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.850			0.850
Flt Protected	0.950			0.994		
Satd. Flow (prot)	1770	1599	0	3527	1863	1615
Flt Permitted	0.950			0.729		
Satd. Flow (perm)	1770	1599	0	2587	1863	1615
Right Turn on Red			Yes			Yes
Satd. Flow (RTOR)			157			185
Link Speed (mph)	30			30	30	
Link Distance (ft)	297			207	425	
Travel Time (s)	6.8			4.7	9.7	
Peak Hour Factor	0.89	0.70	0.84	0.91	0.91	0.81
Heavy Vehicles (%)	2%	1%	0%	2%	2%	0%
Adj. Flow (vph)	225	157	143	978	451	185
Shared Lane Traffic (%)						
Lane Group Flow (vph)	225	157	0	1121	451	185
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases				2		2
Detector Phase	4	4	1	1 2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		30.0	30.0
Minimum Split (s)	14.0	14.0	12.0		36.0	36.0
Total Split (s)	28.0	28.0	26.0		46.0	46.0
Total Split (%)	28.0%	28.0%	26.0%		46.0%	46.0%
Maximum Green (s)	22.0	22.0	22.0		40.0	40.0
Yellow Time (s)	4.0	4.0	3.0		4.0	4.0
All-Red Time (s)	2.0	2.0	1.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0
Recall Mode	None	None	None		C-Max	C-Max
Act Effct Green (s)	18.2	18.2		67.8	46.0	46.0
Actuated g/C Ratio	0.18	0.18		0.68	0.46	0.46
v/c Ratio	0.70	0.37		0.58	0.53	0.22
Control Delay	49.9	8.1		7.7	15.0	1.8
Queue Delay	0.0	0.0		0.0	0.6	0.0
Total Delay	49.9	8.1		7.7	15.6	1.8
LOS	D	A		A	B	A
Approach Delay	32.7			7.7	11.6	
Approach LOS	C			A	B	
Queue Length 50th (ft)	135	0		136	128	1
Queue Length 95th (ft)	204	21		197	169	6

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 AM ALT2 C



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	217			127	345	
Turn Bay Length (ft)						
Base Capacity (vph)	389	474		2005	857	843
Starvation Cap Reductn	0	0		0	147	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.58	0.33		0.56	0.64	0.22

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 13.3

Intersection LOS: B

Intersection Capacity Utilization 77.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: New Park Ave. & Talcott Rd.



HCM Signalized Intersection Capacity Analysis
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 AM ALT2 C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗	↗ ↘	↑ ↗	↑ ↗	↗ ↘
Traffic Volume (vph)	200	110	120	890	410	150
Future Volume (vph)	200	110	120	890	410	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.99	1.00	1.00
Satd. Flow (prot)	1770	1599		3526	1863	1615
Flt Permitted	0.95	1.00		0.73	1.00	1.00
Satd. Flow (perm)	1770	1599		2587	1863	1615
Peak-hour factor, PHF	0.89	0.70	0.84	0.91	0.91	0.81
Adj. Flow (vph)	225	157	143	978	451	185
RTOR Reduction (vph)	0	128	0	0	0	100
Lane Group Flow (vph)	225	29	0	1121	451	85
Heavy Vehicles (%)	2%	1%	0%	2%	2%	0%
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases			2		2	
Actuated Green, G (s)	18.2	18.2		65.8	46.0	46.0
Effective Green, g (s)	18.2	18.2		65.8	46.0	46.0
Actuated g/C Ratio	0.18	0.18		0.66	0.46	0.46
Clearance Time (s)	6.0	6.0			6.0	6.0
Vehicle Extension (s)	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	322	291		1888	856	742
v/s Ratio Prot	c0.13	0.02		c0.12	0.24	
v/s Ratio Perm				c0.27		0.05
v/c Ratio	0.70	0.10		0.59	0.53	0.11
Uniform Delay, d1	38.3	34.1		9.6	19.2	15.4
Progression Factor	1.00	1.00		1.00	0.60	0.40
Incremental Delay, d2	7.0	0.2		0.6	2.2	0.3
Delay (s)	45.3	34.3		10.2	13.7	6.5
Level of Service	D	C		B	B	A
Approach Delay (s)	40.8			10.2	11.6	
Approach LOS	D			B	B	
Intersection Summary						
HCM 2000 Control Delay			16.1	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.62			
Actuated Cycle Length (s)			100.0	Sum of lost time (s)		16.0
Intersection Capacity Utilization			77.5%	ICU Level of Service		D
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 AM ALT2 C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	10	70	10	110	10	960	120	70	480	20
Future Volume (vph)	10	0	10	70	10	110	10	960	120	70	480	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	250		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Fr _t				0.924			0.850					0.991
Flt Protected				0.978			0.968					0.994
Satd. Flow (prot)	0	1717	0	0	1780	1553	0	3495	0	0	3509	0
Flt Permitted				0.844			0.795					0.679
Satd. Flow (perm)	0	1482	0	0	1462	1553	0	3288	0	0	2397	0
Right Turn on Red				Yes			Yes			Yes		Yes
Satd. Flow (RTOR)		60				139			29			15
Link Speed (mph)		30			30			30				30
Link Distance (ft)		156			393			425				656
Travel Time (s)		3.5			8.9			9.7				14.9
Peak Hour Factor	0.38	0.25	0.30	0.87	0.25	0.79	0.56	0.94	0.85	0.79	0.86	0.48
Heavy Vehicles (%)	0%	0%	0%	5%	0%	4%	0%	1%	4%	4%	1%	0%
Adj. Flow (vph)	26	0	33	80	40	139	18	1021	141	89	558	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	59	0	0	120	139	0	1180	0	0	689	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4		4	2			2		
Detector Phase	4	4		4	4	4	2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		5.0	8.0	
Minimum Split (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		9.5	12.0	
Total Split (s)	23.0	23.0		23.0	23.0	23.0	67.5	67.5		9.5	67.5	
Total Split (%)	23.0%	23.0%		23.0%	23.0%	23.0%	67.5%	67.5%		9.5%	67.5%	
Maximum Green (s)	19.0	19.0		19.0	19.0	19.0	63.5	63.5		5.0	63.5	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.5	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		4.0			4.0	4.0		4.0			4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effct Green (s)		14.1			14.1	14.1		77.9			77.9	
Actuated g/C Ratio		0.14			0.14	0.14		0.78			0.78	
v/c Ratio		0.23			0.58	0.41		0.46			0.37	
Control Delay		11.5			50.8	10.1		3.5			2.7	
Queue Delay		0.0			0.0	0.0		0.2			0.0	
Total Delay		11.5			50.8	10.1		3.7			2.7	
LOS		B			D	B		A			A	
Approach Delay		11.5			29.0			3.7			2.7	

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 AM ALT2 C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			C			A			A	
Queue Length 50th (ft)		0			72	0		90			26	
Queue Length 95th (ft)		0			31	34		118			24	
Internal Link Dist (ft)		76			313			345			576	
Turn Bay Length (ft)												
Base Capacity (vph)		330			277	407		2566			1869	
Starvation Cap Reductn		0			0	0		514			0	
Spillback Cap Reductn		0			0	1		44			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.18			0.43	0.34		0.58			0.37	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Yellow

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 6.6

Intersection LOS: A

Intersection Capacity Utilization 64.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: New Park Ave. & Colt Dr./Oakwood Ave.



HCM Signalized Intersection Capacity Analysis

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 AM ALT2 C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	10	70	10	110	10	960	120	70	480	20
Future Volume (vph)	10	0	10	70	10	110	10	960	120	70	480	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0		4.0			4.0
Lane Util. Factor		1.00				1.00	1.00		0.95			0.95
Frt		0.92				1.00	0.85		0.98			0.99
Flt Protected		0.98				0.97	1.00		1.00			0.99
Satd. Flow (prot)				1719			1779	1553		3496		3508
Flt Permitted				0.84			0.79	1.00		0.94		0.68
Satd. Flow (perm)				1482			1461	1553		3290		2396
Peak-hour factor, PHF	0.38	0.25	0.30	0.87	0.25	0.79	0.56	0.94	0.85	0.79	0.86	0.48
Adj. Flow (vph)	26	0	33	80	40	139	18	1021	141	89	558	42
RTOR Reduction (vph)	0	51	0	0	0	119	0	6	0	0	3	0
Lane Group Flow (vph)	0	8	0	0	120	20	0	1174	0	0	686	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	4%	0%	1%	4%	4%	1%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4				4			2		1	2
Permitted Phases	4			4		4	2				2	
Actuated Green, G (s)		14.1			14.1	14.1		77.9			77.9	
Effective Green, g (s)		14.1			14.1	14.1		77.9			77.9	
Actuated g/C Ratio		0.14			0.14	0.14		0.78			0.78	
Clearance Time (s)		4.0			4.0	4.0		4.0			4.0	
Vehicle Extension (s)		4.0			4.0	4.0		4.0			4.0	
Lane Grp Cap (vph)		208			206	218		2562			1866	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.08	0.01		c0.36			0.29	
v/c Ratio		0.04			0.58	0.09		0.46			0.37	
Uniform Delay, d1		37.1			40.2	37.4		3.8			3.4	
Progression Factor		1.00			1.00	1.00		0.72			0.56	
Incremental Delay, d2		0.1			4.9	0.2		0.5			0.1	
Delay (s)		37.2			45.1	37.6		3.2			2.1	
Level of Service		D			D	D		A			A	
Approach Delay (s)		37.2			41.1			3.2			2.1	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay		8.3			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.50										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			12.5				
Intersection Capacity Utilization		64.4%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 AM ALT2 C

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑				↑	↓				↑
Traffic Volume (vph)	160	0	90	0	0	10	130	910	10	10	500	190
Future Volume (vph)	160	0	90	0	0	10	130	910	10	10	500	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	315		0	200		50
Storage Lanes	1		1	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.91	0.91
Frt			0.850		0.865			0.995			0.994	0.850
Flt Protected	0.950	0.950					0.950				0.999	
Satd. Flow (prot)	1649	1649	1553	0	1644	0	1770	1855	0	0	3398	1427
Flt Permitted	0.950	0.950					0.375				0.937	
Satd. Flow (perm)	1649	1649	1553	0	1644	0	699	1855	0	0	3187	1427
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113			324			3		6	154
Link Speed (mph)			30			30			30		30	
Link Distance (ft)			189			135			656		1134	
Travel Time (s)			4.3			3.1			14.9		25.8	
Peak Hour Factor	0.78	0.38	0.80	0.50	0.25	0.38	0.78	0.94	0.33	1.00	0.93	0.84
Heavy Vehicles (%)	4%	0%	4%	0%	0%	0%	2%	2%	0%	0%	1%	3%
Adj. Flow (vph)	205	0	113	0	0	26	167	968	30	10	538	226
Shared Lane Traffic (%)	50%											10%
Lane Group Flow (vph)	102	103	113	0	26	0	167	998	0	0	571	203
Turn Type	Split	NA	pt+ov		NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	8	8	8 1	7	7		1	6			2	
Permitted Phases							6			2		2
Detector Phase	8	8	8 1	7	7		1	6		2	2	2
Switch Phase												
Minimum Initial (s)	6.0	6.0		4.0	4.0		4.0	4.0		6.0	6.0	6.0
Minimum Split (s)	10.0	10.0		8.0	8.0		8.0	8.0		10.0	10.0	10.0
Total Split (s)	10.0	10.0		8.0	8.0		8.0	63.0		55.0	55.0	55.0
Total Split (%)	10.0%	10.0%		8.0%	8.0%		8.0%	63.0%		55.0%	55.0%	55.0%
Maximum Green (s)	6.0	6.0		4.0	4.0		4.9	59.0		51.0	51.0	51.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		0.1	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0			3.1	4.0		4.0	4.0	
Lead/Lag	Lag	Lag		Lead	Lead		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	C-Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	14.3	14.3	26.0		5.5		74.8	73.9			62.2	62.2
Actuated g/C Ratio	0.14	0.14	0.26		0.06		0.75	0.74			0.62	0.62
v/c Ratio	0.43	0.44	0.23		0.07		0.27	0.73			0.29	0.21
Control Delay	45.0	45.1	6.4		0.3		3.9	9.0			11.9	5.3
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0			0.0	0.0

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	19.0
Total Split (s)	19.0
Total Split (%)	19%
Maximum Green (s)	17.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	4.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 AM ALT2 C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	45.0	45.1	6.4		0.3		3.9	9.0			11.9	5.3
LOS	D	D	A		A		A	A			B	A
Approach Delay		31.3			0.3			8.3			10.2	
Approach LOS		C			A			A			B	
Queue Length 50th (ft)	63	64	0		0		14	96			83	17
Queue Length 95th (ft)	100	46	28		0		28	695			m93	m35
Internal Link Dist (ft)		109			55			576			1054	
Turn Bay Length (ft)							315					50
Base Capacity (vph)	236	236	487		396		614	1370			1984	945
Starvation Cap Reductn	0	0	0		0		0	0			0	0
Spillback Cap Reductn	0	0	0		0		0	0			0	0
Storage Cap Reductn	0	0	0		0		0	0			0	0
Reduced v/c Ratio	0.43	0.44	0.23		0.07		0.27	0.73			0.29	0.21

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 12.0

Intersection LOS: B

Intersection Capacity Utilization 85.7%

ICU Level of Service E

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: New Park Ave. & West Hartford Place/Private Dr.



Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor
2030 AM ALT2 C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑		↔		↑	↓		↔	↔	↑
Traffic Volume (vph)	160	0	90	0	0	10	130	910	10	10	500	190
Future Volume (vph)	160	0	90	0	0	10	130	910	10	10	500	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		3.1	4.0			4.0	4.0
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	1.00			0.91	0.91
Frt	1.00	1.00	0.85		0.86		1.00	1.00			0.99	0.85
Flt Protected	0.95	0.95	1.00		1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1649	1649	1553		1644		1770	1855			3398	1427
Flt Permitted	0.95	0.95	1.00		1.00		0.38	1.00			0.94	1.00
Satd. Flow (perm)	1649	1649	1553		1644		699	1855			3188	1427
Peak-hour factor, PHF	0.78	0.38	0.80	0.50	0.25	0.38	0.78	0.94	0.33	1.00	0.93	0.84
Adj. Flow (vph)	205	0	112	0	0	26	167	968	30	10	538	226
RTOR Reduction (vph)	0	0	83	0	25	0	0	1	0	0	2	62
Lane Group Flow (vph)	102	103	30	0	1	0	167	997	0	0	569	141
Heavy Vehicles (%)	4%	0%	4%	0%	0%	0%	2%	2%	0%	0%	1%	3%
Turn Type	Split	NA	pt+ov		NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	8	8	8 1	7	7		1	6			2	
Permitted Phases							6			2		2
Actuated Green, G (s)	14.3	14.3	26.9		2.2		71.5	71.5			59.8	59.8
Effective Green, g (s)	14.3	14.3	26.9		2.2		71.5	71.5			59.8	59.8
Actuated g/C Ratio	0.14	0.14	0.27		0.02		0.72	0.72			0.60	0.60
Clearance Time (s)	4.0	4.0			4.0		3.1	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	235	235	417		36		591	1326			1906	853
v/s Ratio Prot	0.06	c0.06	0.02		c0.00		0.02	c0.54				
v/s Ratio Perm							0.18				0.18	0.10
v/c Ratio	0.43	0.44	0.07		0.02		0.28	0.75			0.30	0.17
Uniform Delay, d1	39.2	39.2	27.3		47.8		4.8	8.8			9.8	9.0
Progression Factor	1.00	1.00	1.00		1.00		0.65	0.62			1.18	1.47
Incremental Delay, d2	1.3	1.3	0.1		0.2		0.2	3.6			0.3	0.3
Delay (s)	40.4	40.5	27.3		48.0		3.4	9.1			11.9	13.5
Level of Service	D	D	C		D		A	A			B	B
Approach Delay (s)		35.8			48.0			8.3			12.3	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			13.9				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)			17.1		
Intersection Capacity Utilization			85.7%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 AM ALT2 C

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓		↑	↑	↑	↑	↑↓		↑	↑↓	
Traffic Volume (vph)	30	330	150	250	190	360	130	620	330	290	320	40
Future Volume (vph)	30	330	150	250	190	360	130	620	330	290	320	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	0		0	175		0	250		250
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Fr _t		0.949				0.850		0.950			0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3381	0	1770	1863	1538	1736	3277	0	1770	1762	0
Flt Permitted	0.623			0.158			0.222			0.159		
Satd. Flow (perm)	1172	3381	0	294	1863	1538	406	3277	0	296	1762	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		76				419		84			11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		282			376			1134			1063	
Travel Time (s)		6.4			8.5			25.8			24.2	
Peak Hour Factor	0.70	0.77	0.68	0.87	0.88	0.86	0.80	0.88	0.94	0.91	0.97	0.59
Heavy Vehicles (%)	1%	1%	2%	2%	2%	5%	4%	4%	6%	2%	5%	5%
Adj. Flow (vph)	43	429	221	287	216	419	163	705	351	319	330	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	650	0	287	216	419	163	1056	0	319	398	0
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6			2		
Detector Phase	7	4		3	8	8	1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	9.0		5.0	9.0	9.0	6.0	15.0		6.0	15.0	
Minimum Split (s)	9.5	14.0		9.5	14.0	14.0	10.5	20.1		10.5	20.1	
Total Split (s)	9.5	18.0		13.0	21.5	21.5	11.2	31.5		15.0	35.3	
Total Split (%)	9.5%	18.0%		13.0%	21.5%	21.5%	11.2%	31.5%		15.0%	35.3%	
Maximum Green (s)	5.5	13.0		9.0	16.5	16.5	7.2	26.4		11.0	30.2	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.6		3.0	3.6	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes				Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	26.2	19.7		44.9	38.1	53.1	34.6	26.4		42.3	30.3	
Actuated g/C Ratio	0.26	0.20		0.45	0.38	0.53	0.35	0.26		0.42	0.30	
v/c Ratio	0.13	0.90		0.67	0.30	0.41	0.70	1.14		1.11	0.74	
Control Delay	21.3	51.4		32.5	27.4	3.6	30.6	102.7		110.6	39.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	22.5
Total Split (s)	22.5
Total Split (%)	23%
Maximum Green (s)	18.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	10
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 AM ALT2 C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	21.3	51.4		32.5	27.4	3.6	30.6	102.7		110.6	39.9	
LOS	C	D		C	C	A	C	F		F	D	
Approach Delay		49.5			18.2			93.0			71.4	
Approach LOS		D			B			F			E	
Queue Length 50th (ft)	14	180		106	94	0	54	-387		-170	221	
Queue Length 95th (ft)	37	#288		#356	#219	54	m76	#468		#343	334	
Internal Link Dist (ft)		202			296			1054			983	
Turn Bay Length (ft)	50						175			250		
Base Capacity (vph)	344	726		431	709	1013	236	926		287	541	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.13	0.90		0.67	0.30	0.41	0.69	1.14		1.11	0.74	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 60.7

Intersection LOS: E

Intersection Capacity Utilization 86.6%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

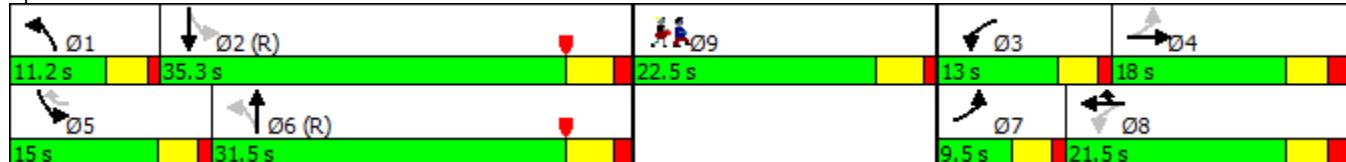
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: New Park Ave. & Flatbush Ave./Flatbush Ave.



Lane Group	Ø9
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor
2030 AM ALT2 C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘		↑ ↗	↑ ↘	↑ ↗	↑ ↗	↑ ↘		↑ ↗	↑ ↘	
Traffic Volume (vph)	30	330	150	250	190	360	130	620	330	290	320	40
Future Volume (vph)	30	330	150	250	190	360	130	620	330	290	320	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	1.00	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	3381		1770	1863	1538	1736	3277		1770	1763	
Flt Permitted	0.62	1.00		0.16	1.00	1.00	0.22	1.00		0.16	1.00	
Satd. Flow (perm)	1172	3381		295	1863	1538	406	3277		297	1763	
Peak-hour factor, PHF	0.70	0.77	0.68	0.87	0.88	0.86	0.80	0.88	0.94	0.91	0.97	0.59
Adj. Flow (vph)	43	429	221	287	216	419	162	705	351	319	330	68
RTOR Reduction (vph)	0	60	0	0	0	213	0	66	0	0	8	0
Lane Group Flow (vph)	43	590	0	287	216	206	163	990	0	319	390	0
Heavy Vehicles (%)	1%	1%	2%	2%	2%	5%	4%	4%	6%	2%	5%	5%
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6			2		
Actuated Green, G (s)	24.8	21.3		45.6	38.1	49.1	28.3	21.2		36.1	25.1	
Effective Green, g (s)	24.8	21.3		45.6	38.1	49.1	28.3	21.2		36.1	25.1	
Actuated g/C Ratio	0.25	0.21		0.46	0.38	0.49	0.28	0.21		0.36	0.25	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	312	720		433	709	832	209	694		269	442	
v/s Ratio Prot	0.00	c0.17		c0.13	0.12	0.09	0.06	c0.30		c0.13	0.22	
v/s Ratio Perm	0.03			0.17		0.04	0.16			0.30		
v/c Ratio	0.14	0.82		0.66	0.30	0.25	0.78	1.43		1.19	0.88	
Uniform Delay, d1	29.0	37.5		19.8	21.7	14.7	29.8	39.4		27.3	36.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.85	0.87		1.00	1.00	
Incremental Delay, d2	0.1	6.9		2.9	0.1	0.1	11.9	198.1		114.8	21.6	
Delay (s)	29.0	44.4		22.8	21.8	14.8	37.2	232.5		142.1	57.6	
Level of Service	C	D		C	C	B	D	F		F	E	
Approach Delay (s)		43.5			18.9			206.4			95.2	
Approach LOS		D			B			F			F	
Intersection Summary												
HCM 2000 Control Delay		103.5										F
HCM 2000 Volume to Capacity ratio		0.96										
Actuated Cycle Length (s)		100.0										22.6
Intersection Capacity Utilization		86.6%										E
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 AM ALT2 C

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↓		↑↑	↓↓		↑↑	↓↓	↑↑
Traffic Volume (vph)	10	0	340	0	0	0	460	550	10	0	260	10
Future Volume (vph)	10	0	340	0	0	0	460	550	10	0	260	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	0		80
Storage Lanes	1		2	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Fr _t			0.850					0.995				0.850
Flt Protected	0.950							0.979				
Satd. Flow (prot)	1805	0	2760	0	1900	0	0	3432	0	0	3406	1615
Flt Permitted	0.950							0.509				
Satd. Flow (perm)	1805	0	2760	0	1900	0	0	1784	0	0	3406	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			343					3				168
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		506			113			1063			446	
Travel Time (s)		11.5			2.6			24.2			10.1	
Peak Hour Factor	0.75	0.92	0.99	0.25	0.25	0.25	0.97	0.89	0.25	0.25	0.85	0.62
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	2%	3%	0%	0%	6%	0%
Adj. Flow (vph)	13	0	343	0	0	0	474	618	40	0	306	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	0	343	0	0	0	0	1132	0	0	306	16
Turn Type	Prot		custom				custom	NA			NA	Prot
Protected Phases	8		1 8	4	4			1 6			2	2
Permitted Phases								6			2	
Detector Phase	8		1 8	4	4		6	1 6		2	2	2
Switch Phase												
Minimum Initial (s)	10.0			5.0	5.0		15.0			15.0	15.0	15.0
Minimum Split (s)	15.0			24.1	24.1		21.3			21.3	21.3	21.3
Total Split (s)	24.1			24.1	24.1		53.9			21.9	21.9	21.9
Total Split (%)	19.4%			19.4%	19.4%		43.4%			17.6%	17.6%	17.6%
Maximum Green (s)	19.1			18.0	18.0		47.6			15.6	15.6	15.6
Yellow Time (s)	3.0			3.0	3.0		3.0			3.0	3.0	3.0
All-Red Time (s)	2.0			3.1	3.1		3.3			3.3	3.3	3.3
Lost Time Adjust (s)	0.0			0.0						0.0	0.0	
Total Lost Time (s)	5.0			6.1						6.3	6.3	
Lead/Lag				Lag	Lag				Lag	Lag	Lag	
Lead-Lag Optimize?				Yes	Yes				Yes	Yes	Yes	
Vehicle Extension (s)	2.0			2.0	2.0		3.0			3.0	3.0	3.0
Recall Mode	None			None	None		C-Max			C-Max	C-Max	C-Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	10.0			94.7			102.1			16.1	16.1	
Actuated g/C Ratio	0.08			0.76			0.82			0.13	0.13	
v/c Ratio	0.09			0.16			4.74dl			0.69	0.05	
Control Delay	54.5			0.6			9.8			60.5	0.2	
Queue Delay	0.0			0.0			0.0			0.0	0.0	

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Fr _t		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	12.0	22.0
Total Split (s)	32.0	22.0
Total Split (%)	26%	18%
Maximum Green (s)	25.0	18.0
Yellow Time (s)	3.0	4.0
All-Red Time (s)	4.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	2.0	3.0
Recall Mode	None	None
Walk Time (s)		5.0
Flash Dont Walk (s)		12.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 AM ALT2 C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	54.5		0.6					9.8			60.5	0.2
LOS	D		A					A			E	A
Approach Delay		2.5						9.8			57.5	
Approach LOS		A						A			E	
Queue Length 50th (ft)	10		0					181			125	0
Queue Length 95th (ft)	26		11					259			162	0
Internal Link Dist (ft)		426			33			983			366	
Turn Bay Length (ft)												80
Base Capacity (vph)	277		2188					1468			441	355
Starvation Cap Reductn	0		0					0			0	0
Spillback Cap Reductn	0		0					0			0	0
Storage Cap Reductn	0		0					0			0	0
Reduced v/c Ratio	0.05		0.16					0.77			0.69	0.05

Intersection Summary

Area Type: Other

Cycle Length: 124.1

Actuated Cycle Length: 124.1

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow, Master Intersection

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 16.9

Intersection LOS: B

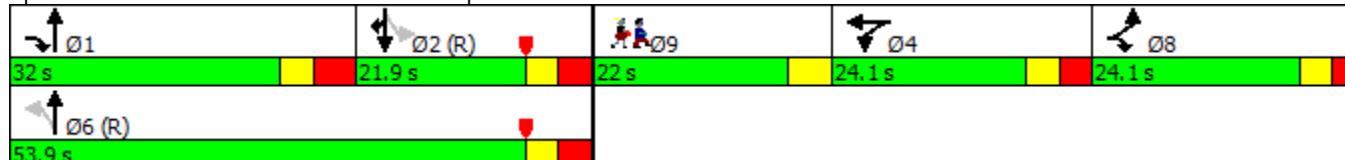
Intersection Capacity Utilization 59.1%

ICU Level of Service B

Analysis Period (min) 15

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: New Park Ave. & Prospect Ave./Private Dr.



Lane Group	Ø1	Ø9
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor
2030 AM ALT2 C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↓			↑↑		↑↑	↑↑	↑
Traffic Volume (vph)	10	0	340	0	0	0	460	550	10	0	260	10
Future Volume (vph)	10	0	340	0	0	0	460	550	10	0	260	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			7.0					7.0		6.3	6.3
Lane Util. Factor	1.00			0.88					0.95		0.95	1.00
Frt	1.00			0.85					0.99		1.00	0.85
Flt Protected	0.95			1.00					0.98		1.00	1.00
Satd. Flow (prot)	1805			2760					3432		3406	1615
Flt Permitted	0.95			1.00					0.51		1.00	1.00
Satd. Flow (perm)	1805			2760					1784		3406	1615
Peak-hour factor, PHF	0.75	0.92	0.99	0.25	0.25	0.25	0.97	0.89	0.25	0.25	0.85	0.62
Adj. Flow (vph)	13	0	343	0	0	0	474	618	40	0	306	16
RTOR Reduction (vph)	0	0	95	0	0	0	0	1	0	0	0	14
Lane Group Flow (vph)	13	0	248	0	0	0	0	1131	0	0	306	2
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	2%	3%	0%	0%	6%	0%
Turn Type	Prot		custom				custom	NA			NA	Prot
Protected Phases	8		1 8	4	4			1 6			2	2
Permitted Phases							6			2		
Actuated Green, G (s)	10.0		94.7					102.8			16.1	16.1
Effective Green, g (s)	10.0		89.7					102.8			16.1	16.1
Actuated g/C Ratio	0.08		0.72					0.83			0.13	0.13
Clearance Time (s)	5.0										6.3	6.3
Vehicle Extension (s)	2.0										3.0	3.0
Lane Grp Cap (vph)	145		1994					1477			441	209
v/s Ratio Prot	0.01		c0.09								0.09	0.00
v/s Ratio Perm								c0.63				
v/c Ratio	0.09		0.12					4.74dl			0.69	0.01
Uniform Delay, d1	52.8		5.2					5.0			51.6	47.1
Progression Factor	1.00		1.00					1.00			1.00	1.00
Incremental Delay, d2	0.1		0.0					2.2			8.7	0.1
Delay (s)	52.9		5.2					7.2			60.3	47.1
Level of Service	D		A					A			E	D
Approach Delay (s)		7.0			0.0			7.2			59.7	
Approach LOS		A			A			A			E	

Intersection Summary

HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	124.1	Sum of lost time (s)	28.4
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Appendix F

Intersection Capacity Analysis Worksheets
Alternative 2 Traffic Volumes
Afternoon Peak Hour

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 PM ALT2 C

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↓			↑↑	↑		↑↓		↑	↓	
Traffic Volume (vph)	330	970	10	10	990	460	10	10	10	550	10	410
Future Volume (vph)	330	970	10	10	990	460	10	10	10	550	10	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	12	12	12	12	12	12	11	12	11
Storage Length (ft)	0		0	0		0	0		0	250		0
Storage Lanes	1		0	0		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Fr _t		0.998				0.850					0.955	0.873
Flt Protected	0.950				0.998				0.984		0.950	0.994
Satd. Flow (prot)	1668	3302	0	0	3507	1599	0	1609	0	1625	1494	0
Flt Permitted	0.148				0.596			0.984		0.950	0.994	
Satd. Flow (perm)	260	3302	0	0	2094	1599	0	1609	0	1625	1494	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		1						16			233	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		386			245			138			2166	
Travel Time (s)		8.8			5.6			3.1			49.2	
Peak Hour Factor	0.92	0.95	0.75	0.25	0.91	0.86	0.25	0.25	0.25	0.89	0.50	0.91
Heavy Vehicles (%)	1%	1%	67%	50%	1%	1%	0%	0%	33%	2%	100%	1%
Adj. Flow (vph)	359	1021	13	40	1088	535	40	40	40	618	20	451
Shared Lane Traffic (%)										10%		
Lane Group Flow (vph)	359	1034	0	0	1128	535	0	120	0	556	533	0
Turn Type	D.P+P	NA		Perm	NA	pt+ov	Split	NA		Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2		2									
Detector Phase	1	1 2		2	2	2 4	5	5		4	4	
Switch Phase												
Minimum Initial (s)	5.0			15.0	15.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5			22.9	22.9		13.0	13.0		13.0	13.0	
Total Split (s)	10.0			35.0	35.0		10.0	10.0		35.0	35.0	
Total Split (%)	8.9%			31.3%	31.3%		8.9%	8.9%		31.3%	31.3%	
Maximum Green (s)	6.0			27.1	27.1		2.0	2.0		27.0	27.0	
Yellow Time (s)	3.0			3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0			4.9	4.9		5.0	5.0		5.0	5.0	
Lost Time Adjust (s)	0.0			0.0			0.0			0.0	0.0	
Total Lost Time (s)	4.0				7.9			8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag				Lag	Lag		
Lead-Lag Optimize?	Yes			Yes	Yes				Yes	Yes		
Vehicle Extension (s)	1.5			2.5	2.5		1.5	1.5		1.5	1.5	
Recall Mode	None			C-Max	C-Max		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	37.0	41.0			27.1	76.2		2.0		49.0	49.0	
Actuated g/C Ratio	0.33	0.37			0.24	0.68		0.02		0.44	0.44	
v/c Ratio	2.23	0.86			2.23	0.49		2.73		0.78	0.68	
Control Delay	593.5	41.1			582.9	6.0		855.9		36.3	18.6	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	22.0
Total Split (%)	20%
Maximum Green (s)	18.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	19.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 PM ALT2 C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	593.5	41.1		582.9	6.0		855.9		36.3	18.6		
LOS	F	D		F	A		F		D	B		
Approach Delay		183.5			397.3			855.9			27.7	
Approach LOS		F			F			F			C	
Queue Length 50th (ft)	~367	357		~691	67		~136		352	178		
Queue Length 95th (ft)	#555	448		#824	90		#39		501	65		
Internal Link Dist (ft)		306			165			58		2086		
Turn Bay Length (ft)										250		
Base Capacity (vph)	161	1209			506	1087		44		710	784	
Starvation Cap Reductn	0	0			0	0		0		0	0	
Spillback Cap Reductn	0	0			0	0		0		0	0	
Storage Cap Reductn	0	0			0	0		0		0	0	
Reduced v/c Ratio	2.23	0.86			2.23	0.49		2.73		0.78	0.68	

Intersection Summary

Area Type: Other

Cycle Length: 112

Actuated Cycle Length: 112

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 2.73

Intersection Signal Delay: 246.0

Intersection LOS: F

Intersection Capacity Utilization 106.1%

ICU Level of Service G

Analysis Period (min) 15

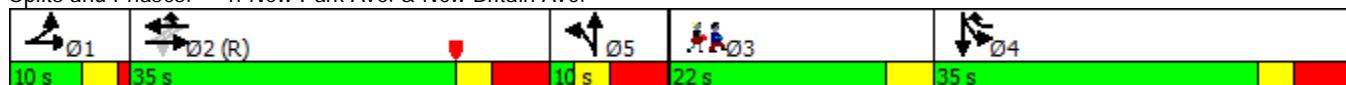
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: New Park Ave. & New Britain Ave.



Lane Group	Ø3
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 PM ALT2 C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑	↑	
Traffic Volume (vph)	330	970	10	10	990	460	10	10	10	550	10	410
Future Volume (vph)	330	970	10	10	990	460	10	10	10	550	10	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12	12	12	12	11	12	11
Total Lost time (s)	4.0	4.0			7.9	7.9		8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.95		0.95
Frt	1.00	1.00			1.00	0.85		0.95		1.00		0.87
Flt Protected	0.95	1.00			1.00	1.00		0.98		0.95		0.99
Satd. Flow (prot)	1668	3303			3508	1599		1608		1625		1495
Flt Permitted	0.15	1.00			0.60	1.00		0.98		0.95		0.99
Satd. Flow (perm)	259	3303			2094	1599		1608		1625		1495
Peak-hour factor, PHF	0.92	0.95	0.75	0.25	0.91	0.86	0.25	0.25	0.25	0.89	0.50	0.91
Adj. Flow (vph)	359	1021	13	40	1088	535	40	40	40	618	20	451
RTOR Reduction (vph)	0	1	0	0	0	0	0	16	0	0	131	0
Lane Group Flow (vph)	359	1033	0	0	1128	535	0	104	0	556	402	0
Heavy Vehicles (%)	1%	1%	67%	50%	1%	1%	0%	0%	33%	2%	100%	1%
Turn Type	D.P+P	NA		Perm	NA	pt+ov	Split	NA		Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2			2								
Actuated Green, G (s)	33.1	37.1			27.1	76.1		2.0		49.0		49.0
Effective Green, g (s)	33.1	37.1			27.1	76.1		2.0		49.0		49.0
Actuated g/C Ratio	0.30	0.33			0.24	0.68		0.02		0.44		0.44
Clearance Time (s)	4.0				7.9			8.0		8.0		8.0
Vehicle Extension (s)	1.5				2.5			1.5		1.5		1.5
Lane Grp Cap (vph)	152	1094			506	1086		28		710		654
v/s Ratio Prot	c0.13	0.31				0.33		c0.06		c0.34		0.27
v/s Ratio Perm	c0.57				0.54							
v/c Ratio	2.36	0.94			2.23	0.49		3.72		0.78		0.61
Uniform Delay, d1	37.5	36.4			42.5	8.6		55.0		27.0		24.2
Progression Factor	1.00	1.00			1.00	1.00		1.00		1.00		1.00
Incremental Delay, d2	632.7	15.4			559.5	0.1		1308.4		5.2		1.2
Delay (s)	670.2	51.9			602.0	8.8		1363.4		32.2		25.4
Level of Service	F	D			F	A		F		C		C
Approach Delay (s)		211.2			411.1			1363.4				28.9
Approach LOS		F			F			F				C
Intersection Summary												
HCM 2000 Control Delay		275.0			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.54										
Actuated Cycle Length (s)		112.0			Sum of lost time (s)			31.9				
Intersection Capacity Utilization		106.1%			ICU Level of Service			G				
Analysis Period (min)		15										

c Critical Lane Group

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 PM ALT2 C

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	170	130	150	750	950	300
Future Volume (vph)	170	130	150	750	950	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.850			0.850
Flt Protected	0.950			0.992		
Satd. Flow (prot)	1787	1615	0	3551	1881	1615
Flt Permitted	0.950			0.491		
Satd. Flow (perm)	1787	1615	0	1758	1881	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		169				305
Link Speed (mph)	30			30	30	
Link Distance (ft)	297			213	425	
Travel Time (s)	6.8			4.8	9.7	
Peak Hour Factor	0.94	0.77	0.88	0.81	0.88	0.88
Heavy Vehicles (%)	1%	0%	0%	1%	1%	0%
Adj. Flow (vph)	181	169	170	926	1080	341
Shared Lane Traffic (%)						
Lane Group Flow (vph)	181	169	0	1096	1080	341
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases				2		2
Detector Phase	4	4	1	1 2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		30.0	30.0
Minimum Split (s)	14.0	14.0	12.0		36.0	36.0
Total Split (s)	20.0	20.0	15.0		75.0	75.0
Total Split (%)	18.2%	18.2%	13.6%		68.2%	68.2%
Maximum Green (s)	14.0	14.0	11.0		69.0	69.0
Yellow Time (s)	4.0	4.0	3.0		4.0	4.0
All-Red Time (s)	2.0	2.0	1.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0
Recall Mode	None	None	None		C-Max	C-Max
Act Effct Green (s)	13.7	13.7		82.3	69.0	69.0
Actuated g/C Ratio	0.12	0.12		0.75	0.63	0.63
v/c Ratio	0.82	0.48		0.73	0.92	0.30
Control Delay	74.8	11.8		7.5	19.3	0.8
Queue Delay	0.0	0.0		0.0	46.1	0.6
Total Delay	74.8	11.8		7.5	65.5	1.4
LOS	E	B		A	E	A
Approach Delay	44.4			7.5	50.1	
Approach LOS	D			A	D	
Queue Length 50th (ft)	126	0		104	581	3
Queue Length 95th (ft)	#241	36		110	m594	m3



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	217			133	345	
Turn Bay Length (ft)						
Base Capacity (vph)	227	353		1499	1179	1126
Starvation Cap Reductn	0	0		0	235	455
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.80	0.48		0.73	1.14	0.51

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 33.1

Intersection LOS: C

Intersection Capacity Utilization 97.8%

ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: New Park Ave. & Talcott Rd.



HCM Signalized Intersection Capacity Analysis
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 PM ALT2 C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	170	130	150	750	950	300
Future Volume (vph)	170	130	150	750	950	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.99	1.00	1.00
Satd. Flow (prot)	1787	1615		3552	1881	1615
Flt Permitted	0.95	1.00		0.49	1.00	1.00
Satd. Flow (perm)	1787	1615		1757	1881	1615
Peak-hour factor, PHF	0.94	0.77	0.88	0.81	0.88	0.88
Adj. Flow (vph)	181	169	170	926	1080	341
RTOR Reduction (vph)	0	148	0	0	0	114
Lane Group Flow (vph)	181	21	0	1096	1080	227
Heavy Vehicles (%)	1%	0%	0%	1%	1%	0%
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases			2		2	
Actuated Green, G (s)	13.7	13.7		80.3	69.0	69.0
Effective Green, g (s)	13.7	13.7		80.3	69.0	69.0
Actuated g/C Ratio	0.12	0.12		0.73	0.63	0.63
Clearance Time (s)	6.0	6.0			6.0	6.0
Vehicle Extension (s)	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	222	201		1467	1179	1013
v/s Ratio Prot	c0.10	0.01		c0.08	c0.57	
v/s Ratio Perm				0.47		0.14
v/c Ratio	0.82	0.10		0.75	0.92	0.22
Uniform Delay, d1	46.9	42.7		8.8	18.0	8.9
Progression Factor	1.00	1.00		1.00	0.75	0.38
Incremental Delay, d2	21.0	0.3		2.3	4.5	0.2
Delay (s)	67.9	43.0		11.1	18.0	3.6
Level of Service	E	D		B	B	A
Approach Delay (s)	55.9			11.1	14.6	
Approach LOS	E			B	B	
Intersection Summary						
HCM 2000 Control Delay		18.3		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.88				
Actuated Cycle Length (s)		110.0		Sum of lost time (s)		16.0
Intersection Capacity Utilization		97.8%		ICU Level of Service		F
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 PM ALT2 C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	10	20	120	10	110	10	800	90	170	1110	10
Future Volume (vph)	30	10	20	120	10	110	10	800	90	170	1110	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	0	0	0	249	0	0
Storage Lanes	0	0	0	0	1	0	0	0	0	0	0	0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Fr _t		0.947				0.850		0.984			0.998	
Flt Protected		0.982			0.957			0.999			0.994	
Satd. Flow (prot)	0	1767	0	0	1755	1583	0	3534	0	0	3573	0
Flt Permitted		0.613			0.615			0.894			0.621	
Satd. Flow (perm)	0	1103	0	0	1128	1583	0	3162	0	0	2232	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			169			26			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		156			393			425			656	
Travel Time (s)		3.5			8.9			9.7			14.9	
Peak Hour Factor	0.75	0.38	0.47	0.66	0.50	0.65	0.50	0.86	0.80	0.90	0.78	0.50
Heavy Vehicles (%)	0%	0%	0%	4%	0%	2%	0%	0%	4%	2%	0%	0%
Adj. Flow (vph)	40	26	43	182	20	169	20	930	113	189	1423	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	109	0	0	202	169	0	1063	0	0	1632	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4		4	2			2		
Detector Phase	4	4		4	4	4	2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		5.0	8.0	
Minimum Split (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		9.5	12.0	
Total Split (s)	22.0	22.0		22.0	22.0	22.0	78.5	78.5		9.5	78.5	
Total Split (%)	20.0%	20.0%		20.0%	20.0%	20.0%	71.4%	71.4%		8.6%	71.4%	
Maximum Green (s)	18.0	18.0		18.0	18.0	18.0	74.5	74.5		5.0	74.5	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.5	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		4.0			4.0	4.0		4.0			4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effct Green (s)		18.0			18.0	18.0		84.0			84.0	
Actuated g/C Ratio		0.16			0.16	0.16		0.76			0.76	
v/c Ratio		0.54			1.10	0.42		0.44			0.96	
Control Delay		43.4			138.8	9.7		4.1			33.8	
Queue Delay		0.1			0.0	0.0		0.6			30.5	
Total Delay		43.5			138.8	9.7		4.7			64.3	
LOS		D			F	A		A			E	
Approach Delay		43.5			80.0			4.7			64.3	

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 PM ALT2 C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			F			A			E	
Queue Length 50th (ft)		55			~162	0		105			332	
Queue Length 95th (ft)		34			118	12		117			386	
Internal Link Dist (ft)		76			313			345			576	
Turn Bay Length (ft)												
Base Capacity (vph)		201			184	400		2420			1705	
Starvation Cap Reductn		0			0	0		858			0	
Spillback Cap Reductn		1			0	2		48			179	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.55			1.10	0.42		0.68			1.07	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 45.5

Intersection LOS: D

Intersection Capacity Utilization 83.3%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

Splits and Phases: 3: New Park Ave. & Colt Dr./Oakwood Ave.



HCM Signalized Intersection Capacity Analysis

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 PM ALT2 C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	10	20	120	10	110	10	800	90	170	1110	10
Future Volume (vph)	30	10	20	120	10	110	10	800	90	170	1110	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0		4.0			4.0
Lane Util. Factor		1.00				1.00	1.00		0.95			0.95
Frt		0.95				1.00	0.85		0.98			1.00
Flt Protected		0.98				0.96	1.00		1.00			0.99
Satd. Flow (prot)		1766				1755	1583		3534			3574
Flt Permitted		0.61				0.62	1.00		0.89			0.62
Satd. Flow (perm)		1102				1128	1583		3162			2231
Peak-hour factor, PHF	0.75	0.38	0.47	0.66	0.50	0.65	0.50	0.86	0.80	0.90	0.78	0.50
Adj. Flow (vph)	40	26	43	182	20	169	20	930	112	189	1423	20
RTOR Reduction (vph)	0	21	0	0	0	141	0	6	0	0	1	0
Lane Group Flow (vph)	0	88	0	0	202	28	0	1057	0	0	1631	0
Heavy Vehicles (%)	0%	0%	0%	4%	0%	2%	0%	0%	4%	2%	0%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4				4			2		1	2
Permitted Phases	4			4		4	2				2	
Actuated Green, G (s)		18.0			18.0	18.0		84.0				84.0
Effective Green, g (s)		18.0			18.0	18.0		84.0				84.0
Actuated g/C Ratio		0.16			0.16	0.16		0.76				0.76
Clearance Time (s)		4.0			4.0	4.0		4.0				4.0
Vehicle Extension (s)		4.0			4.0	4.0		4.0				4.0
Lane Grp Cap (vph)		180			184	259		2414				1703
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.18	0.02		0.33				c0.73
v/c Ratio		0.49			1.10	0.11		0.44				0.96
Uniform Delay, d1		41.8			46.0	39.2		4.6				11.4
Progression Factor		1.00			1.00	1.00		0.82				1.82
Incremental Delay, d2		2.8			94.9	0.2		0.4				11.8
Delay (s)		44.7			140.9	39.4		4.1				32.6
Level of Service		D			F	D		A				C
Approach Delay (s)		44.7			94.7			4.1				32.6
Approach LOS		D			F			A				C
Intersection Summary												
HCM 2000 Control Delay		30.7			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		1.03										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			12.5				
Intersection Capacity Utilization		83.3%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 PM ALT2 C

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑				↑	↓			↔	↑
Traffic Volume (vph)	290	10	240	10	10	10	190	740	10	10	990	320
Future Volume (vph)	290	10	240	10	10	10	190	740	10	10	990	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	315		0	200		50
Storage Lanes	1		1	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.91	0.91
Frt			0.850		0.955			0.998			0.995	0.850
Flt Protected	0.950	0.955			0.984		0.950					
Satd. Flow (prot)	1698	1708	1583	0	1785	0	1787	1878	0	0	3439	1441
Flt Permitted	0.950	0.955			0.984		0.111				0.946	
Satd. Flow (perm)	1698	1708	1583	0	1785	0	209	1878	0	0	3253	1441
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			261			11			1		3	139
Link Speed (mph)			30			30			30		30	
Link Distance (ft)			189			135			656		1134	
Travel Time (s)			4.3			3.1			14.9		25.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	1%	1%	0%	0%	0%	2%
Adj. Flow (vph)	315	11	261	11	11	11	207	804	11	11	1076	348
Shared Lane Traffic (%)	48%											10%
Lane Group Flow (vph)	164	162	261	0	33	0	207	815	0	0	1122	313
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	8	8	8	1	7	7		1	6		2	
Permitted Phases								6		2		2
Detector Phase	8	8	8	1	7	7		1	6		2	2
Switch Phase												
Minimum Initial (s)	6.0	6.0			4.0	4.0		5.0	5.0		5.0	5.0
Minimum Split (s)	10.0	10.0			8.0	8.0		9.5	22.5		22.5	22.5
Total Split (s)	14.0	14.0			8.0	8.0		13.0	58.5		45.5	45.5
Total Split (%)	12.7%	12.7%			7.3%	7.3%		11.8%	53.2%		41.4%	41.4%
Maximum Green (s)	10.0	10.0			4.0	4.0		8.5	54.0		41.0	41.0
Yellow Time (s)	3.0	3.0			3.0	3.0		3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0			1.0	1.0		1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	4.0			4.0			4.5	4.5		4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Min		C-Min	C-Min	C-Min
Walk Time (s)								7.0		7.0	7.0	7.0
Flash Dont Walk (s)								11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)								0		0	0	0
Act Effct Green (s)	19.9	19.9	41.0		7.0		74.4	74.4			53.3	53.3
Actuated g/C Ratio	0.18	0.18	0.37		0.06		0.68	0.68			0.48	0.48
v/c Ratio	0.53	0.52	0.35		0.27		0.55	0.64			0.71	0.41
Control Delay	47.5	47.2	3.9		41.3		15.7	12.0			30.7	18.5
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0			0.0	0.0

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	29.5
Total Split (s)	29.5
Total Split (%)	27%
Maximum Green (s)	25.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	4.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 PM ALT2 C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	47.5	47.2	3.9		41.3		15.7	12.0			30.7	18.5
LOS	D	D	A		D		B	B			C	B
Approach Delay		28.0			41.3			12.8			28.0	
Approach LOS		C			D			B			C	
Queue Length 50th (ft)	112	110	0		15		29	394			345	96
Queue Length 95th (ft)	181	177	47		46		98	578		m#436	m186	
Internal Link Dist (ft)		109			55			576			1054	
Turn Bay Length (ft)							315					50
Base Capacity (vph)	307	309	754		124		379	1270			1577	769
Starvation Cap Reductn	0	0	0		0		0	5			0	0
Spillback Cap Reductn	0	0	0		0		0	0			0	0
Storage Cap Reductn	0	0	0		0		0	0			0	0
Reduced v/c Ratio	0.53	0.52	0.35		0.27		0.55	0.64			0.71	0.41

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 23.1

Intersection LOS: C

Intersection Capacity Utilization 96.4%

ICU Level of Service F

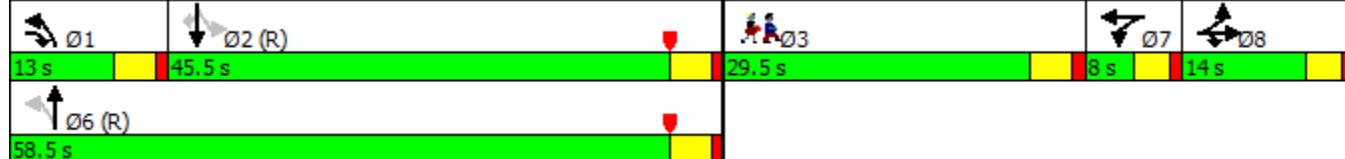
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: New Park Ave. & West Hartford Place/Private Dr.



Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor
2030 PM ALT2 C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑				↑	↓			↔	↑
Traffic Volume (vph)	290	10	240	10	10	10	190	740	10	10	990	320
Future Volume (vph)	290	10	240	10	10	10	190	740	10	10	990	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		4.5	4.5			4.5	4.5
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	1.00			0.91	0.91
Frt	1.00	1.00	0.85		0.95		1.00	1.00			1.00	0.85
Flt Protected	0.95	0.96	1.00		0.98		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1698	1709	1583		1785		1787	1878			3438	1441
Flt Permitted	0.95	0.96	1.00		0.98		0.11	1.00			0.95	1.00
Satd. Flow (perm)	1698	1709	1583		1785		209	1878			3253	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	315	11	261	11	11	11	207	804	11	11	1076	348
RTOR Reduction (vph)	0	0	165	0	11	0	0	0	0	0	2	74
Lane Group Flow (vph)	164	162	96	0	22	0	207	815	0	0	1120	239
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	1%	1%	0%	0%	0%	2%
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	8	8	8 1	7	7		1	6			2	
Permitted Phases							6			2		2
Actuated Green, G (s)	19.9	19.9	40.5		4.8		72.8	72.8			51.7	51.7
Effective Green, g (s)	19.9	19.9	40.5		4.8		72.8	72.8			51.7	51.7
Actuated g/C Ratio	0.18	0.18	0.37		0.04		0.66	0.66			0.47	0.47
Clearance Time (s)	4.0	4.0			4.0		4.5	4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	307	309	582		77		376	1242			1528	677
v/s Ratio Prot	c0.10	0.09	0.06		c0.01		0.08	c0.43				
v/s Ratio Perm							0.28				c0.34	0.17
v/c Ratio	0.53	0.52	0.17		0.29		0.55	0.66			0.73	0.35
Uniform Delay, d1	40.8	40.8	23.4		51.0		14.8	11.1			23.6	18.5
Progression Factor	1.00	1.00	1.00		1.00		0.85	0.80			1.18	1.50
Incremental Delay, d2	1.8	1.6	0.1		2.1		1.6	2.5			1.8	0.8
Delay (s)	42.6	42.4	23.5		53.1		14.2	11.3			29.8	28.5
Level of Service	D	D	C		D		B	B			C	C
Approach Delay (s)		34.1			53.1			11.9			29.5	
Approach LOS		C			D			B			C	
Intersection Summary												
HCM 2000 Control Delay			24.8				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			110.0				Sum of lost time (s)			21.5		
Intersection Capacity Utilization			96.4%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 PM ALT2 C

	↑	→	↓	↶	←	↷	↶	↑	↷	↓	↶	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓		↑	↑	↑	↑	↑↓		↑	↑↓	
Traffic Volume (vph)	30	240	190	350	360	460	240	560	290	420	800	30
Future Volume (vph)	30	240	190	350	360	460	240	560	290	420	800	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	0		0	175		0	250		250
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.934				0.850		0.948			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3338	0	1752	1881	1615	1787	3377	0	1805	3515	0
Flt Permitted	0.513			0.245			0.188			0.950		
Satd. Flow (perm)	975	3338	0	452	1881	1615	354	3377	0	1805	3515	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		143				244		90			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		282			376			1134			1063	
Travel Time (s)		6.4			8.5			25.8			24.2	
Peak Hour Factor	0.69	0.85	0.86	0.91	0.84	0.89	0.79	0.84	0.81	0.89	0.94	0.59
Heavy Vehicles (%)	0%	1%	1%	3%	1%	0%	1%	1%	2%	0%	2%	0%
Adj. Flow (vph)	43	282	221	385	429	517	304	667	358	472	851	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	503	0	385	429	517	304	1025	0	472	902	0
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6					
Detector Phase	7	4		3	8	8	1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	9.0		5.0	9.0	9.0	6.0	15.0		6.0	15.0	
Minimum Split (s)	9.5	14.0		9.5	14.0	14.0	10.5	20.1		10.5	20.1	
Total Split (s)	9.5	15.5		20.0	26.0	26.0	22.6	36.0		29.0	42.4	
Total Split (%)	8.6%	14.1%		18.2%	23.6%	23.6%	20.5%	32.7%		26.4%	38.5%	
Maximum Green (s)	5.0	10.5		16.0	21.0	21.0	18.6	30.9		25.0	37.3	
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.6		3.0	3.6	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes				Yes	
Vehicle Extension (s)	3.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)	18.2	10.5		41.0	32.5	61.5	48.1	30.9		25.0	39.8	
Actuated g/C Ratio	0.17	0.10		0.37	0.30	0.56	0.44	0.28		0.23	0.36	
v/c Ratio	0.20	1.13		0.82	0.77	0.51	0.84	1.01		1.15	0.71	
Control Delay	27.1	114.3		43.9	48.0	10.2	44.4	61.5		131.8	34.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	27.1	114.3		43.9	48.0	10.2	44.4	61.5		131.8	34.1	
LOS	C	F		D	D	B	D	E		F	C	
Approach Delay		107.5			32.2			57.6			67.7	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	9.5
Total Split (s)	9.5
Total Split (%)	9%
Maximum Green (s)	5.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 PM ALT2 C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		F			C			E			E	
Queue Length 50th (ft)	19	~165		216	292	115	136	~382		~393	290	
Queue Length 95th (ft)	33	#247		#362	#439	213	197	#443		#585	371	
Internal Link Dist (ft)		202			296			1054			983	
Turn Bay Length (ft)	50						175			250		
Base Capacity (vph)	215	447		469	555	1009	405	1013		410	1276	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	1.13		0.82	0.77	0.51	0.75	1.01		1.15	0.71	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 59.2

Intersection LOS: E

Intersection Capacity Utilization 95.2%

ICU Level of Service F

Analysis Period (min) 15

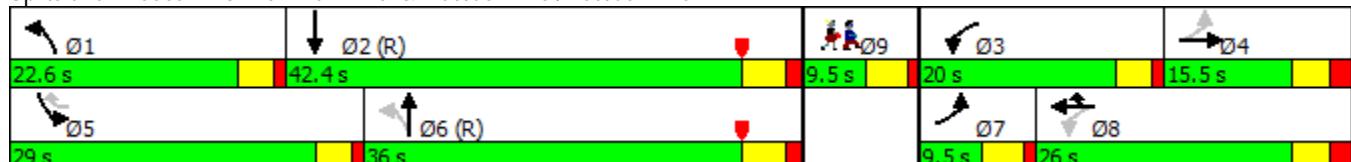
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: New Park Ave. & Flatbush Ave./Flatbush Ave.



Lane Group	Ø9
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor
2030 PM ALT2 C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑	↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	30	240	190	350	360	460	240	560	290	420	800	30
Future Volume (vph)	30	240	190	350	360	460	240	560	290	420	800	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	3339		1752	1881	1615	1787	3375		1805	3513	
Flt Permitted	0.51	1.00		0.25	1.00	1.00	0.19	1.00		0.95	1.00	
Satd. Flow (perm)	974	3339		453	1881	1615	353	3375		1805	3513	
Peak-hour factor, PHF	0.69	0.85	0.86	0.91	0.84	0.89	0.79	0.84	0.81	0.89	0.94	0.59
Adj. Flow (vph)	43	282	221	385	429	517	304	667	358	472	851	51
RTOR Reduction (vph)	0	127	0	0	0	116	0	66	0	0	4	0
Lane Group Flow (vph)	43	376	0	385	429	401	304	959	0	472	898	0
Heavy Vehicles (%)	0%	1%	1%	3%	1%	0%	1%	1%	2%	0%	2%	0%
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6					
Actuated Green, G (s)	17.1	12.3		41.8	32.5	57.5	45.2	29.1		25.0	38.0	
Effective Green, g (s)	17.1	12.3		41.8	32.5	57.5	45.2	29.1		25.0	38.0	
Actuated g/C Ratio	0.16	0.11		0.38	0.30	0.52	0.41	0.26		0.23	0.35	
Clearance Time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	187	373		473	555	917	354	892		410	1213	
v/s Ratio Prot	0.01	c0.11		c0.19	0.23	0.13	0.13	c0.28		c0.26	0.26	
v/s Ratio Perm	0.03			0.12		0.12	0.23					
v/c Ratio	0.23	1.01		0.81	0.77	0.44	0.86	1.07		1.15	0.74	
Uniform Delay, d1	40.2	48.9		28.0	35.4	16.2	24.3	40.5		42.5	31.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.23	0.87		1.00	1.00	
Incremental Delay, d2	0.6	48.6		9.8	6.0	0.1	15.7	50.5		92.6	4.1	
Delay (s)	40.8	97.5		37.8	41.4	16.4	45.5	85.7		135.1	35.8	
Level of Service	D	F		D	D	B	D	F		F	D	
Approach Delay (s)	93.0			30.6			76.5			69.9		
Approach LOS		F		C			E			E		
Intersection Summary												
HCM 2000 Control Delay	63.1											E
HCM 2000 Volume to Capacity ratio	1.08											
Actuated Cycle Length (s)	110.0											23.1
Intersection Capacity Utilization	95.2%											F
Analysis Period (min)	15											
c Critical Lane Group												

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 PM ALT2 C

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↓		↑↑	↓↓		↑↑	↓↓	↑↑
Traffic Volume (vph)	20	0	810	10	0	0	580	460	10	0	540	10
Future Volume (vph)	20	0	810	10	0	0	580	460	10	0	540	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	0		80
Storage Lanes	1		2	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Frt			0.850					0.998				0.850
Flt Protected	0.950				0.950			0.974				
Satd. Flow (prot)	1805	0	2787	0	1805	0	0	3475	0	0	3574	1615
Flt Permitted	0.950				0.950			0.552				
Satd. Flow (perm)	1805	0	2787	0	1805	0	0	1969	0	0	3574	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			910					1				155
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		506			113			1063			446	
Travel Time (s)		11.5			2.6			24.2			10.1	
Peak Hour Factor	0.67	0.92	0.89	0.50	0.50	0.92	0.95	0.86	0.75	0.25	0.90	0.75
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	0%	0%	1%	0%
Adj. Flow (vph)	30	0	910	20	0	0	611	535	13	0	600	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	0	910	0	20	0	0	1159	0	0	600	13
Turn Type	Prot		custom	Split	NA		custom	NA			NA	Prot
Protected Phases	8		1 8	4	4			1 6			2	2
Permitted Phases								6			2	
Detector Phase	8		1 8	4	4		6	1 6		2	2	2
Switch Phase												
Minimum Initial (s)	10.0			5.0	5.0		15.0			15.0	15.0	15.0
Minimum Split (s)	15.0			24.1	24.1		21.3			21.3	21.3	21.3
Total Split (s)	24.1			24.1	24.1		63.9			31.9	31.9	31.9
Total Split (%)	18.0%			18.0%	18.0%		47.7%			23.8%	23.8%	23.8%
Maximum Green (s)	19.1			18.0	18.0		57.6			25.6	25.6	25.6
Yellow Time (s)	3.0			3.0	3.0		3.0			3.0	3.0	3.0
All-Red Time (s)	2.0			3.1	3.1		3.3			3.3	3.3	3.3
Lost Time Adjust (s)	0.0			0.0						0.0	0.0	
Total Lost Time (s)	5.0			6.1						6.3	6.3	
Lead/Lag				Lag	Lag				Lag	Lag	Lag	
Lead-Lag Optimize?				Yes	Yes				Yes	Yes	Yes	
Vehicle Extension (s)	2.0			2.0	2.0		3.0			3.0	3.0	3.0
Recall Mode	None			None	None		C-Max			C-Max	C-Max	C-Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	10.4			87.4		6.2		103.9			25.6	25.6
Actuated g/C Ratio	0.08			0.65		0.05		0.77			0.19	0.19
v/c Ratio	0.22			0.43		0.24		10.91dl			0.88	0.03
Control Delay	61.8			1.3		68.2		14.0			68.0	0.1
Queue Delay	0.0			0.0		0.0		0.0			0.0	0.0

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Fr _t		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	12.0	22.0
Total Split (s)	32.0	22.0
Total Split (%)	24%	16%
Maximum Green (s)	25.0	18.0
Yellow Time (s)	3.0	4.0
All-Red Time (s)	4.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	2.0	3.0
Recall Mode	None	None
Walk Time (s)		5.0
Flash Dont Walk (s)		12.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 PM ALT2 C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	61.8		1.3		68.2			14.0			68.0	0.1
LOS	E		A		E			B			E	A
Approach Delay		3.3			68.2			14.0			66.6	
Approach LOS		A			E			B			E	
Queue Length 50th (ft)	25		0		17			288			270	0
Queue Length 95th (ft)	43		25		25			396			#367	0
Internal Link Dist (ft)		426			33			983			366	
Turn Bay Length (ft)												80
Base Capacity (vph)	257		2132		242			1526			682	433
Starvation Cap Reductn	0		0		0			0			0	0
Spillback Cap Reductn	0		0		0			0			0	0
Storage Cap Reductn	0		0		0			0			0	0
Reduced v/c Ratio	0.12		0.43		0.08			0.76			0.88	0.03

Intersection Summary

Area Type: Other

Cycle Length: 134.1

Actuated Cycle Length: 134.1

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow, Master Intersection

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 22.5

Intersection LOS: C

Intersection Capacity Utilization 70.4%

ICU Level of Service C

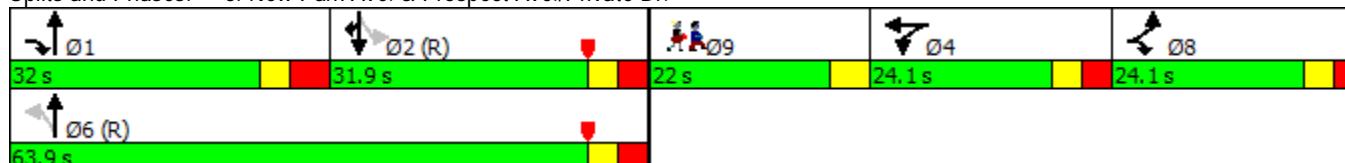
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: New Park Ave. & Prospect Ave./Private Dr.



Lane Group	Ø1	Ø9
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor
2030 PM ALT2 C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↓			↑↑		↑↑	↑↑	↑
Traffic Volume (vph)	20	0	810	10	0	0	580	460	10	0	540	10
Future Volume (vph)	20	0	810	10	0	0	580	460	10	0	540	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			7.0		6.1			7.0		6.3	6.3
Lane Util. Factor	1.00			0.88		1.00			0.95		0.95	1.00
Frt	1.00			0.85		1.00			1.00		1.00	0.85
Flt Protected	0.95			1.00		0.95			0.97		1.00	1.00
Satd. Flow (prot)	1805			2787		1805			3477		3574	1615
Flt Permitted	0.95			1.00		0.95			0.55		1.00	1.00
Satd. Flow (perm)	1805			2787		1805			1969		3574	1615
Peak-hour factor, PHF	0.67	0.92	0.89	0.50	0.50	0.92	0.95	0.86	0.75	0.25	0.90	0.75
Adj. Flow (vph)	30	0	910	20	0	0	611	535	13	0	600	13
RTOR Reduction (vph)	0	0	351	0	0	0	0	0	0	0	0	11
Lane Group Flow (vph)	30	0	559	0	20	0	0	1159	0	0	600	2
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	0%	0%	1%	0%
Turn Type	Prot		custom	Split	NA		custom	NA			NA	Prot
Protected Phases	8		1 8	4	4				1 6		2	2
Permitted Phases							6			2		
Actuated Green, G (s)	10.4		87.4		4.2			102.1			23.1	23.1
Effective Green, g (s)	10.4		82.4		4.2			102.1			23.1	23.1
Actuated g/C Ratio	0.08		0.61		0.03			0.76			0.17	0.17
Clearance Time (s)	5.0				6.1						6.3	6.3
Vehicle Extension (s)	2.0				2.0						3.0	3.0
Lane Grp Cap (vph)	139		1712		56			1499			615	278
v/s Ratio Prot	0.02		c0.20		c0.01						c0.17	0.00
v/s Ratio Perm							c0.59					
v/c Ratio	0.22		0.33		0.36			10.91dl			0.98	0.01
Uniform Delay, d1	58.0		12.5		63.6			9.3			55.2	46.0
Progression Factor	1.00		1.00		1.00			1.00			1.00	1.00
Incremental Delay, d2	0.3		0.0		1.4			2.3			30.8	0.1
Delay (s)	58.3		12.5		65.0			11.6			86.0	46.1
Level of Service	E		B		E			B			F	D
Approach Delay (s)		14.0			65.0			11.6			85.1	
Approach LOS		B			E			B			F	

Intersection Summary

HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	134.1	Sum of lost time (s)	28.4
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Appendix F

Intersection Capacity Analysis Worksheets
Alternative 2 Traffic Volumes
Saturday Peak Hour

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 Sat ALT2 C

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑	↑	
Traffic Volume (vph)	340	790	0	0	870	480	0	0	0	480	0	370
Future Volume (vph)	340	790	0	0	870	480	0	0	0	480	0	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	12	12	12	12	12	12	11	12	11
Storage Length (ft)	0		0	0		0	0		0	250		0
Storage Lanes	1		0	0		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Fr _t						0.850						0.868
Flt Protected	0.950									0.950	0.994	
Satd. Flow (prot)	1668	3336	0	0	3574	1599	0	1900	0	1625	1540	0
Flt Permitted	0.117									0.950	0.994	
Satd. Flow (perm)	205	3336	0	0	3574	1599	0	1900	0	1625	1540	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)												232
Link Speed (mph)		30			30			30				30
Link Distance (ft)		386			245			138				815
Travel Time (s)		8.8			5.6			3.1				18.5
Peak Hour Factor	0.92	0.95	0.75	0.25	0.91	0.86	0.25	0.25	0.25	0.89	0.50	0.91
Heavy Vehicles (%)	1%	1%	67%	50%	1%	1%	0%	0%	33%	2%	100%	1%
Adj. Flow (vph)	370	832	0	0	956	558	0	0	0	539	0	407
Shared Lane Traffic (%)										10%		
Lane Group Flow (vph)	370	832	0	0	956	558	0	0	0	485	461	0
Turn Type	D.P+P	NA			NA	pt+ov				Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2		2									
Detector Phase	1	1 2		2	2	2 4	5	5		4	4	
Switch Phase												
Minimum Initial (s)	5.0			15.0	15.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5			22.9	22.9		13.0	13.0		13.0	13.0	
Total Split (s)	24.0			42.0	42.0		13.0	13.0		41.0	41.0	
Total Split (%)	16.0%			28.0%	28.0%		8.7%	8.7%		27.3%	27.3%	
Maximum Green (s)	20.0			34.1	34.1		5.0	5.0		33.0	33.0	
Yellow Time (s)	3.0			3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0			4.9	4.9		5.0	5.0		5.0	5.0	
Lost Time Adjust (s)	0.0				0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.0				7.9			8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag				Lag	Lag		
Lead-Lag Optimize?	Yes			Yes	Yes				Yes	Yes		
Vehicle Extension (s)	1.5			2.5	2.5		1.5	1.5		1.5	1.5	
Recall Mode	None			C-Max	C-Max		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	68.9	72.9			34.1	107.2				65.1	65.1	
Actuated g/C Ratio	0.46	0.49			0.23	0.71				0.43	0.43	
v/c Ratio	0.94	0.51			1.18	0.49				0.69	0.58	
Control Delay	73.9	27.2			141.8	12.1				42.0	19.2	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	20%
Maximum Green (s)	26.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	19.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 Sat ALT2 C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0					0.0	0.0	
Total Delay	73.9	27.2		141.8	12.1					42.0	19.2	
LOS	E	C		F	B					D	B	
Approach Delay		41.6			94.0						30.9	
Approach LOS		D			F						C	
Queue Length 50th (ft)	290	271		-586	244					420	184	
Queue Length 95th (ft)	#450	325		#724	312					566	54	
Internal Link Dist (ft)		306			165				58		735	
Turn Bay Length (ft)											250	
Base Capacity (vph)	395	1620			812	1142				705	799	
Starvation Cap Reductn	0	0			0	0				0	0	
Spillback Cap Reductn	0	0			0	0				0	0	
Storage Cap Reductn	0	0			0	0				0	0	
Reduced v/c Ratio	0.94	0.51			1.18	0.49				0.69	0.58	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.18

Intersection Signal Delay: 60.5

Intersection LOS: E

Intersection Capacity Utilization 87.1%

ICU Level of Service E

Analysis Period (min) 15

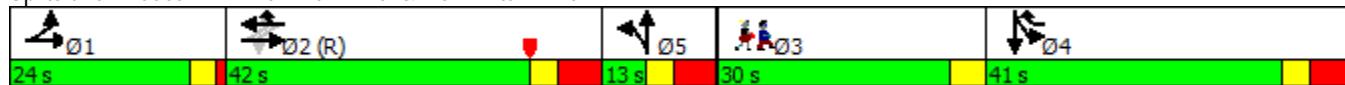
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: New Park Ave. & New Britain Ave.



Lane Group	Ø3
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 Sat ALT2 C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑	↑	
Traffic Volume (vph)	340	790	0	0	870	480	0	0	0	480	0	370
Future Volume (vph)	340	790	0	0	870	480	0	0	0	480	0	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12	12	12	12	11	12	11
Total Lost time (s)	4.0	4.0			7.9	7.9				8.0	8.0	
Lane Util. Factor	1.00	0.95			0.95	1.00				0.95	0.95	
Frt	1.00	1.00			1.00	0.85				1.00	0.87	
Flt Protected	0.95	1.00			1.00	1.00				0.95	0.99	
Satd. Flow (prot)	1668	3336			3574	1599				1625	1540	
Flt Permitted	0.12	1.00			1.00	1.00				0.95	0.99	
Satd. Flow (perm)	206	3336			3574	1599				1625	1540	
Peak-hour factor, PHF	0.92	0.95	0.75	0.25	0.91	0.86	0.25	0.25	0.25	0.89	0.50	0.91
Adj. Flow (vph)	370	832	0	0	956	558	0	0	0	539	0	407
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	131	0
Lane Group Flow (vph)	370	832	0	0	956	558	0	0	0	485	330	0
Heavy Vehicles (%)	1%	1%	67%	50%	1%	1%	0%	0%	33%	2%	100%	1%
Turn Type	D.P+P	NA			NA	pt+ov				Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2		2									
Actuated Green, G (s)	65.0	69.0			34.1	107.1				65.1	65.1	
Effective Green, g (s)	65.0	69.0			34.1	107.1				65.1	65.1	
Actuated g/C Ratio	0.43	0.46			0.23	0.71				0.43	0.43	
Clearance Time (s)	4.0				7.9					8.0	8.0	
Vehicle Extension (s)	1.5				2.5					1.5	1.5	
Lane Grp Cap (vph)	390	1534			812	1141				705	668	
v/s Ratio Prot	c0.20	0.25			c0.27	0.35				c0.30	0.21	
v/s Ratio Perm	0.22											
v/c Ratio	0.95	0.54			1.18	0.49				0.69	0.49	
Uniform Delay, d1	45.8	29.1			58.0	9.4				34.3	30.6	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	31.9	0.2			92.5	0.1				2.2	0.2	
Delay (s)	77.7	29.4			150.4	9.5				36.5	30.8	
Level of Service	E	C			F	A				D	C	
Approach Delay (s)		44.2			98.5				0.0		33.7	
Approach LOS		D			F				A		C	
Intersection Summary												
HCM 2000 Control Delay		64.0			HCM 2000 Level of Service				E			
HCM 2000 Volume to Capacity ratio		0.97										
Actuated Cycle Length (s)		150.0			Sum of lost time (s)				31.9			
Intersection Capacity Utilization		87.1%			ICU Level of Service				E			
Analysis Period (min)		15										

c Critical Lane Group

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 Sat ALT2 C

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	200	110	100	720	780	260
Future Volume (vph)	200	110	100	720	780	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.850			0.850
Flt Protected	0.950			0.994		
Satd. Flow (prot)	1787	1615	0	3557	1881	1615
Flt Permitted	0.950			0.589		
Satd. Flow (perm)	1787	1615	0	2108	1881	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		143				293
Link Speed (mph)	30			30	30	
Link Distance (ft)	297			213	425	
Travel Time (s)	6.8			4.8	9.7	
Peak Hour Factor	0.94	0.77	0.88	0.81	0.88	0.88
Heavy Vehicles (%)	1%	0%	0%	1%	1%	0%
Adj. Flow (vph)	213	143	114	889	886	295
Shared Lane Traffic (%)						
Lane Group Flow (vph)	213	143	0	1003	886	295
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases				2		2
Detector Phase	4	4	1	1 2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		30.0	30.0
Minimum Split (s)	14.0	14.0	12.0		36.0	36.0
Total Split (s)	24.0	24.0	15.0		71.0	71.0
Total Split (%)	21.8%	21.8%	13.6%		64.5%	64.5%
Maximum Green (s)	18.0	18.0	11.0		65.0	65.0
Yellow Time (s)	4.0	4.0	3.0		4.0	4.0
All-Red Time (s)	2.0	2.0	1.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0
Recall Mode	None	None	None		C-Max	C-Max
Act Effct Green (s)	16.9	16.9		79.1	65.6	65.6
Actuated g/C Ratio	0.15	0.15		0.72	0.60	0.60
v/c Ratio	0.78	0.39		0.60	0.79	0.27
Control Delay	64.5	10.1		6.8	21.0	1.1
Queue Delay	0.0	0.0		0.0	14.5	0.4
Total Delay	64.5	10.1		6.8	35.5	1.6
LOS	E	B		A	D	A
Approach Delay	42.6			6.8	27.0	
Approach LOS	D			A	C	
Queue Length 50th (ft)	144	0		112	541	9
Queue Length 95th (ft)	#249	33		120	589	m10



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	217			133	345	
Turn Bay Length (ft)						
Base Capacity (vph)	292	383		1668	1121	1081
Starvation Cap Reductn	0	0		0	234	410
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.73	0.37		0.60	1.00	0.44

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 21.2

Intersection LOS: C

Intersection Capacity Utilization 88.3%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: New Park Ave. & Talcott Rd.



HCM Signalized Intersection Capacity Analysis
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 Sat ALT2 C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↗ ↘	↖ ↗	↑ ↗	↑ ↘	↖ ↗
Traffic Volume (vph)	200	110	100	720	780	260
Future Volume (vph)	200	110	100	720	780	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.99	1.00	1.00
Satd. Flow (prot)	1787	1615		3558	1881	1615
Flt Permitted	0.95	1.00		0.59	1.00	1.00
Satd. Flow (perm)	1787	1615		2107	1881	1615
Peak-hour factor, PHF	0.94	0.77	0.88	0.81	0.88	0.88
Adj. Flow (vph)	213	143	114	889	886	295
RTOR Reduction (vph)	0	121	0	0	0	118
Lane Group Flow (vph)	213	22	0	1003	886	177
Heavy Vehicles (%)	1%	0%	0%	1%	1%	0%
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases			2		2	
Actuated Green, G (s)	16.9	16.9		77.1	65.6	65.6
Effective Green, g (s)	16.9	16.9		77.1	65.6	65.6
Actuated g/C Ratio	0.15	0.15		0.70	0.60	0.60
Clearance Time (s)	6.0	6.0			6.0	6.0
Vehicle Extension (s)	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	274	248		1628	1121	963
v/s Ratio Prot	c0.12	0.01		c0.06	c0.47	
v/s Ratio Perm				0.37		0.11
v/c Ratio	0.78	0.09		0.62	0.79	0.18
Uniform Delay, d1	44.7	39.9		8.7	17.0	10.1
Progression Factor	1.00	1.00		1.00	0.98	0.63
Incremental Delay, d2	13.7	0.2		0.8	3.3	0.2
Delay (s)	58.4	40.2		9.5	20.0	6.6
Level of Service	E	D		A	B	A
Approach Delay (s)	51.1			9.5	16.6	
Approach LOS	D			A	B	
Intersection Summary						
HCM 2000 Control Delay		18.6		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.77				
Actuated Cycle Length (s)		110.0		Sum of lost time (s)		16.0
Intersection Capacity Utilization		88.3%		ICU Level of Service		E
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 Sat ALT2 C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	0	60	0	150	10	860	60	180	980	10
Future Volume (vph)	10	0	0	60	0	150	10	860	60	180	980	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	0	0	0	249	0	0
Storage Lanes	0	0	0	0	1	0	0	0	0	0	0	0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Fr _t						0.850		0.990			0.998	
Flt Protected		0.950			0.950			0.999			0.993	
Satd. Flow (prot)	0	1805	0	0	1736	1583	0	3561	0	0	3568	0
Flt Permitted		0.612			0.749			0.904			0.606	
Satd. Flow (perm)	0	1163	0	0	1368	1583	0	3222	0	0	2177	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					231			19			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		156			393			425			656	
Travel Time (s)		3.5			8.9			9.7			14.9	
Peak Hour Factor	0.75	0.38	0.47	0.66	0.50	0.65	0.50	0.86	0.80	0.90	0.78	0.50
Heavy Vehicles (%)	0%	0%	0%	4%	0%	2%	0%	0%	4%	2%	0%	0%
Adj. Flow (vph)	13	0	0	91	0	231	20	1000	75	200	1256	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	13	0	0	91	231	0	1095	0	0	1476	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4		4	2			2		
Detector Phase	4	4		4	4	4	2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		5.0	8.0	
Minimum Split (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		9.5	12.0	
Total Split (s)	15.0	15.0		15.0	15.0	15.0	85.5	85.5		9.5	85.5	
Total Split (%)	13.6%	13.6%		13.6%	13.6%	13.6%	77.7%	77.7%		8.6%	77.7%	
Maximum Green (s)	11.0	11.0		11.0	11.0	11.0	81.5	81.5		5.0	81.5	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.5	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		4.0			4.0	4.0		4.0			4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effct Green (s)		10.5			10.5	10.5		91.5			91.5	
Actuated g/C Ratio		0.10			0.10	0.10		0.83			0.83	
v/c Ratio		0.12			0.70	0.64		0.41			0.82	
Control Delay		47.8			76.0	15.0		2.2			20.8	
Queue Delay		0.0			0.0	0.1		0.3			1.8	
Total Delay		47.8			76.0	15.1		2.4			22.6	
LOS		D			E	B		A			C	
Approach Delay		47.8			32.3			2.4			22.6	

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 Sat ALT2 C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			C			A			C	
Queue Length 50th (ft)		9			63	0		24			354	
Queue Length 95th (ft)		12			63	8		28			352	
Internal Link Dist (ft)		76			313			345			576	
Turn Bay Length (ft)												
Base Capacity (vph)	116				136	366		2682			1811	
Starvation Cap Reductn	0				0	0		808			0	
Spillback Cap Reductn	0				0	4		62			186	
Storage Cap Reductn	0				0	0		0			0	
Reduced v/c Ratio	0.11				0.67	0.64		0.58			0.91	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 16.2

Intersection LOS: B

Intersection Capacity Utilization 75.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: New Park Ave. & Colt Dr./Oakwood Ave.



HCM Signalized Intersection Capacity Analysis

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 Sat ALT2 C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	0	60	0	150	10	860	60	180	980	10
Future Volume (vph)	10	0	0	60	0	150	10	860	60	180	980	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0		4.0			4.0
Lane Util. Factor		1.00				1.00	1.00		0.95			0.95
Frt		1.00				1.00	0.85		0.99			1.00
Flt Protected		0.95				0.95	1.00		1.00			0.99
Satd. Flow (prot)		1805				1736	1583		3560			3569
Flt Permitted		0.61				0.75	1.00		0.90			0.61
Satd. Flow (perm)		1162				1368	1583		3221			2178
Peak-hour factor, PHF	0.75	0.38	0.47	0.66	0.50	0.65	0.50	0.86	0.80	0.90	0.78	0.50
Adj. Flow (vph)	13	0	0	91	0	231	20	1000	75	200	1256	20
RTOR Reduction (vph)	0	0	0	0	0	209	0	3	0	0	1	0
Lane Group Flow (vph)	0	13	0	0	91	22	0	1092	0	0	1475	0
Heavy Vehicles (%)	0%	0%	0%	4%	0%	2%	0%	0%	4%	2%	0%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4				4			2		1	2
Permitted Phases	4			4		4	2				2	
Actuated Green, G (s)		10.5			10.5	10.5		91.5			91.5	
Effective Green, g (s)		10.5			10.5	10.5		91.5			91.5	
Actuated g/C Ratio		0.10			0.10	0.10		0.83			0.83	
Clearance Time (s)		4.0			4.0	4.0		4.0			4.0	
Vehicle Extension (s)		4.0			4.0	4.0		4.0			4.0	
Lane Grp Cap (vph)		110			130	151		2679			1811	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.07	0.01		0.34			c0.68	
v/c Ratio		0.12			0.70	0.15		0.41			0.81	
Uniform Delay, d1		45.5			48.2	45.6		2.4			4.8	
Progression Factor		1.00			1.00	1.00		0.76			3.07	
Incremental Delay, d2		0.7			16.3	0.6		0.4			2.5	
Delay (s)		46.2			64.5	46.2		2.1			17.4	
Level of Service		D			E	D		A			B	
Approach Delay (s)		46.2			51.4			2.1			17.4	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay		15.5			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.84										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			12.5				
Intersection Capacity Utilization		75.8%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 Sat ALT2 C

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑				↑	↓			↔	↑
Traffic Volume (vph)	380	10	370	10	10	10	320	690	20	10	720	430
Future Volume (vph)	380	10	370	10	10	10	320	690	20	10	720	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	315		0	50		50
Storage Lanes	1		1	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.91	0.91
Fr _t			0.850		0.955			0.996			0.988	0.850
Flt Protected	0.950	0.955			0.984		0.950				0.999	
Satd. Flow (prot)	1698	1708	1583	0	1785	0	1787	1874	0	0	3408	1441
Flt Permitted	0.950	0.955			0.984		0.109				0.943	
Satd. Flow (perm)	1698	1708	1583	0	1785	0	205	1874	0	0	3217	1441
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			402			11			2		8	139
Link Speed (mph)			30			30			30		30	
Link Distance (ft)			189			135			656		1134	
Travel Time (s)			4.3			3.1			14.9		25.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	1%	1%	0%	0%	0%	2%
Adj. Flow (vph)	413	11	402	11	11	11	348	750	22	11	783	467
Shared Lane Traffic (%)	49%											15%
Lane Group Flow (vph)	211	213	402	0	33	0	348	772	0	0	864	397
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	8	8	8 1	7	7		1	6			2	
Permitted Phases							6			2		2
Detector Phase	8	8	8 1	7	7		1	6		2	2	2
Switch Phase												
Minimum Initial (s)	6.0	6.0		4.0	4.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	10.0	10.0		8.0	8.0		9.5	22.5		22.5	22.5	22.5
Total Split (s)	17.0	17.0		8.0	8.0		18.7	55.5		36.8	36.8	36.8
Total Split (%)	15.5%	15.5%		7.3%	7.3%		17.0%	50.5%		33.5%	33.5%	33.5%
Maximum Green (s)	13.0	13.0		4.0	4.0		14.2	51.0		32.3	32.3	32.3
Yellow Time (s)	3.0	3.0		3.0	3.0		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0			4.5	4.5		4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Min		C-Min	C-Min	C-Min
Walk Time (s)								7.0		7.0	7.0	7.0
Flash Dont Walk (s)								11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)								0		0	0	0
Act Effct Green (s)	24.0	24.0	56.7		7.0		70.3	70.3			37.6	37.6
Actuated g/C Ratio	0.22	0.22	0.52		0.06		0.64	0.64			0.34	0.34
v/c Ratio	0.57	0.57	0.40		0.27		0.65	0.64			0.78	0.68
Control Delay	44.7	44.8	2.7		41.3		24.0	15.0			41.3	29.4
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.1			0.0	0.0

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	29.5
Total Split (s)	29.5
Total Split (%)	27%
Maximum Green (s)	25.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	4.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 Sat ALT2 C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	44.7	44.8	2.7		41.3		24.0	15.1			41.3	29.4
LOS	D	D	A		D		C	B			D	C
Approach Delay		24.3			41.3			17.9			37.5	
Approach LOS		C			D			B			D	
Queue Length 50th (ft)	142	143	0		15		134	392			287	185
Queue Length 95th (ft)	214	216	47		46		#302	611			m337	m215
Internal Link Dist (ft)		109			55			576			1054	
Turn Bay Length (ft)							315					50
Base Capacity (vph)	370	372	1010		124		536	1198			1106	584
Starvation Cap Reductn	0	0	0		0		0	43			0	0
Spillback Cap Reductn	0	0	0		0		0	0			0	0
Storage Cap Reductn	0	0	0		0		0	0			0	0
Reduced v/c Ratio	0.57	0.57	0.40		0.27		0.65	0.67			0.78	0.68

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 27.4

Intersection LOS: C

Intersection Capacity Utilization 90.6%

ICU Level of Service E

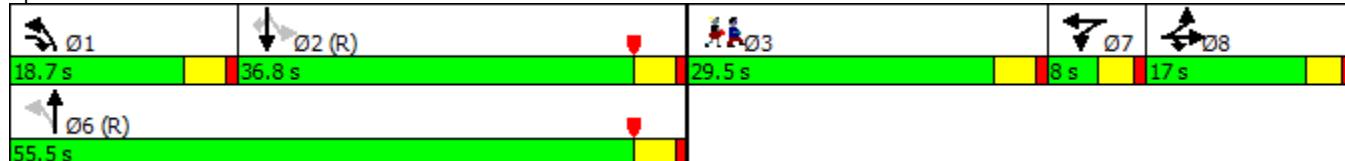
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: New Park Ave. & West Hartford Place/Private Dr.



Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor
2030 Sat ALT2 C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑		↑	↓	↑	↓		↑	↓	↑
Traffic Volume (vph)	380	10	370	10	10	10	320	690	20	10	720	430
Future Volume (vph)	380	10	370	10	10	10	320	690	20	10	720	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		4.5	4.5			4.5	4.5
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	1.00			0.91	0.91
Frt	1.00	1.00	0.85		0.95		1.00	1.00			0.99	0.85
Flt Protected	0.95	0.95	1.00		0.98		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1698	1707	1583		1785		1787	1874			3408	1441
Flt Permitted	0.95	0.95	1.00		0.98		0.11	1.00			0.94	1.00
Satd. Flow (perm)	1698	1707	1583		1785		205	1874			3215	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	413	11	402	11	11	11	348	750	22	11	783	467
RTOR Reduction (vph)	0	0	197	0	11	0	0	1	0	0	5	94
Lane Group Flow (vph)	211	213	205	0	22	0	348	771	0	0	859	303
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	1%	1%	0%	0%	0%	2%
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	8	8	8 1	7	7		1	6			2	
Permitted Phases							6			2		2
Actuated Green, G (s)	24.0	24.0	56.2		4.8		68.7	68.7			36.0	36.0
Effective Green, g (s)	24.0	24.0	56.2		4.8		68.7	68.7			36.0	36.0
Actuated g/C Ratio	0.22	0.22	0.51		0.04		0.62	0.62			0.33	0.33
Clearance Time (s)	4.0	4.0			4.0		4.5	4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	370	372	808		77		533	1170			1052	471
v/s Ratio Prot	0.12	c0.12	0.13		c0.01		0.17	c0.41				
v/s Ratio Perm							0.24				c0.27	0.21
v/c Ratio	0.57	0.57	0.25		0.29		0.65	0.66			0.82	0.64
Uniform Delay, d1	38.4	38.4	15.1		51.0		23.6	13.2			34.0	31.5
Progression Factor	1.00	1.00	1.00		1.00		0.83	0.87			1.16	1.26
Incremental Delay, d2	2.1	2.1	0.2		2.1		2.6	2.7			2.8	2.6
Delay (s)	40.5	40.5	15.3		53.1		22.2	14.1			42.3	42.3
Level of Service	D	D	B		D		C	B			D	D
Approach Delay (s)		28.2			53.1			16.6			42.3	
Approach LOS		C			D			B			D	
Intersection Summary												
HCM 2000 Control Delay			29.9				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			110.0				Sum of lost time (s)			21.5		
Intersection Capacity Utilization			90.6%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 Sat ALT2 C

	↑	→	↓	↶	←	↷	↶	↑	↷	↓	↶	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓		↑	↑	↑	↑	↑↓		↑	↑↓	
Traffic Volume (vph)	30	170	240	380	220	450	220	550	320	400	600	20
Future Volume (vph)	30	170	240	380	220	450	220	550	320	400	600	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	0		0	175		0	250		250
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.913				0.850		0.944			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3263	0	1752	1881	1615	1787	3362	0	1805	1850	0
Flt Permitted	0.597			0.270			0.145			0.950		
Satd. Flow (perm)	1134	3263	0	498	1881	1615	273	3362	0	1805	1850	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		249				248		112				3
Link Speed (mph)		30			30			30				30
Link Distance (ft)		282			376			1134				1063
Travel Time (s)		6.4			8.5			25.8				24.2
Peak Hour Factor	0.69	0.85	0.86	0.91	0.84	0.89	0.79	0.84	0.81	0.89	0.94	0.59
Heavy Vehicles (%)	0%	1%	1%	3%	1%	0%	1%	1%	2%	0%	2%	0%
Adj. Flow (vph)	43	200	279	418	262	506	278	655	395	449	638	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	479	0	418	262	506	278	1050	0	449	672	0
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6					
Detector Phase	7	4		3	8	8	1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	9.0		5.0	9.0	9.0	6.0	15.0		6.0	15.0	
Minimum Split (s)	9.5	14.0		9.5	14.0	14.0	10.5	20.1		10.5	20.1	
Total Split (s)	9.5	14.0		23.0	27.5	27.5	17.2	34.5		29.0	46.3	
Total Split (%)	8.6%	12.7%		20.9%	25.0%	25.0%	15.6%	31.4%		26.4%	42.1%	
Maximum Green (s)	5.0	9.0		19.0	22.5	22.5	13.2	29.4		25.0	41.2	
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.6		3.0	3.6	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes				Yes	
Vehicle Extension (s)	3.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)	16.7	9.0		42.5	34.0	63.0	43.7	29.4		25.0	41.2	
Actuated g/C Ratio	0.15	0.08		0.39	0.31	0.57	0.40	0.27		0.23	0.37	
v/c Ratio	0.20	0.97		0.81	0.45	0.49	0.96	1.07		1.10	0.97	
Control Delay	26.8	58.0		41.2	35.4	9.2	68.9	80.0		113.3	61.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	26.8	58.0		41.2	35.4	9.2	68.9	80.0		113.3	61.8	
LOS	C	E		D	D	A	E	E		F	E	
Approach Delay		55.4			26.3			77.7			82.4	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	9.5
Total Split (s)	9.5
Total Split (%)	9%
Maximum Green (s)	5.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 Sat ALT2 C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		E		C			E			F		
Queue Length 50th (ft)	19	87		234	157	103	149	~409		~359	458	
Queue Length 95th (ft)	32	#168		#380	226	195	#237	#467		#548	#704	
Internal Link Dist (ft)		202			296			1054			983	
Turn Bay Length (ft)	50						175			250		
Base Capacity (vph)	215	495		517	581	1030	290	980		410	694	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.97		0.81	0.45	0.49	0.96	1.07		1.10	0.97	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 61.5

Intersection LOS: E

Intersection Capacity Utilization 96.2%

ICU Level of Service F

Analysis Period (min) 15

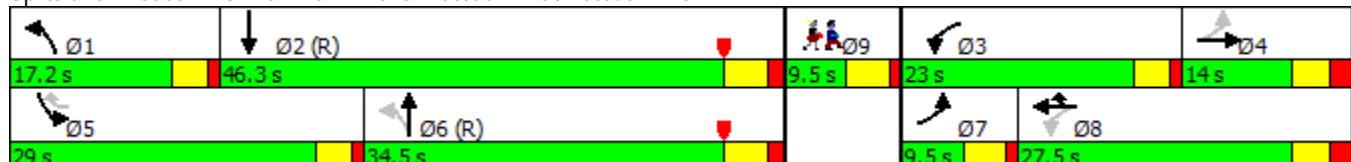
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: New Park Ave. & Flatbush Ave./Flatbush Ave.



Lane Group	Ø9
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor
2030 Sat ALT2 C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑	↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	30	170	240	380	220	450	220	550	320	400	600	20
Future Volume (vph)	30	170	240	380	220	450	220	550	320	400	600	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	1.00	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	0.94		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	3262		1752	1881	1615	1787	3360		1805	1850	
Flt Permitted	0.60	1.00		0.27	1.00	1.00	0.14	1.00		0.95	1.00	
Satd. Flow (perm)	1135	3262		499	1881	1615	273	3360		1805	1850	
Peak-hour factor, PHF	0.69	0.85	0.86	0.91	0.84	0.89	0.79	0.84	0.81	0.89	0.94	0.59
Adj. Flow (vph)	43	200	279	418	262	506	278	655	395	449	638	34
RTOR Reduction (vph)	0	225	0	0	0	115	0	84	0	0	2	0
Lane Group Flow (vph)	43	254	0	418	262	391	278	966	0	449	670	0
Heavy Vehicles (%)	0%	1%	1%	3%	1%	0%	1%	1%	2%	0%	2%	0%
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6					
Actuated Green, G (s)	15.6	10.8		43.3	34.0	59.0	40.8	27.6		25.0	39.4	
Effective Green, g (s)	15.6	10.8		43.3	34.0	59.0	40.8	27.6		25.0	39.4	
Actuated g/C Ratio	0.14	0.10		0.39	0.31	0.54	0.37	0.25		0.23	0.36	
Clearance Time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	190	320		521	581	939	282	843		410	662	
v/s Ratio Prot	0.01	0.08	c0.21	0.14	0.13	0.12	c0.29		c0.25	0.36		
v/s Ratio Perm	0.02		c0.11		0.11	0.25						
v/c Ratio	0.23	0.80		0.80	0.45	0.42	0.99	1.15		1.10	1.01	
Uniform Delay, d1	41.5	48.5		27.2	30.5	15.2	29.1	41.2		42.5	35.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.99	0.90		1.00	1.00	
Incremental Delay, d2	0.6	12.0		8.2	0.2	0.1	45.1	77.8		72.6	38.0	
Delay (s)	42.1	60.5		35.5	30.7	15.3	73.9	114.8		115.1	73.3	
Level of Service	D	E		D	C	B	E	F		F	E	
Approach Delay (s)		59.0			25.8			106.2			90.1	
Approach LOS		E			C			F			F	
Intersection Summary												
HCM 2000 Control Delay		73.0										E
HCM 2000 Volume to Capacity ratio		1.07										
Actuated Cycle Length (s)		110.0										23.1
Intersection Capacity Utilization		96.2%										F
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 Sat ALT2 C

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	0	590	0	0	10	510	470	0	10	430	10
Future Volume (vph)	20	0	590	0	0	10	510	470	0	10	430	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	0		80
Storage Lanes	1		2	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Fr _t			0.850		0.865							0.850
Flt Protected	0.950							0.976				0.996
Satd. Flow (prot)	1805	0	2787	0	1644	0	0	3488	0	0	3563	1615
Flt Permitted	0.950							0.518				0.747
Satd. Flow (perm)	1805	0	2787	0	1644	0	0	1851	0	0	2672	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			663			522						155
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		506			113			1063			446	
Travel Time (s)		11.5			2.6			24.2			10.1	
Peak Hour Factor	0.67	0.92	0.89	0.50	0.50	0.92	0.95	0.86	0.75	0.25	0.90	0.75
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	0%	0%	1%	0%
Adj. Flow (vph)	30	0	663	0	0	11	537	547	0	40	478	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	0	663	0	11	0	0	1084	0	0	518	13
Turn Type	Prot		custom		NA		custom	NA		Perm	NA	Prot
Protected Phases	8		1 8	4	4			1 6			2	2
Permitted Phases								6			2	
Detector Phase	8		1 8	4	4		6	1 6		2	2	2
Switch Phase												
Minimum Initial (s)	10.0			5.0	5.0		15.0			15.0	15.0	15.0
Minimum Split (s)	15.0			24.1	24.1		21.3			21.3	21.3	21.3
Total Split (s)	24.1			24.1	24.1		63.9			36.9	36.9	36.9
Total Split (%)	18.0%			18.0%	18.0%		47.7%			27.5%	27.5%	27.5%
Maximum Green (s)	19.1			18.0	18.0		57.6			30.6	30.6	30.6
Yellow Time (s)	3.0			3.0	3.0		3.0			3.0	3.0	3.0
All-Red Time (s)	2.0			3.1	3.1		3.3			3.3	3.3	3.3
Lost Time Adjust (s)	0.0			0.0						0.0	0.0	
Total Lost Time (s)	5.0			6.1						6.3	6.3	
Lead/Lag				Lag	Lag				Lag	Lag	Lag	
Lead-Lag Optimize?				Yes	Yes				Yes	Yes	Yes	
Vehicle Extension (s)	2.0			2.0	2.0		3.0			3.0	3.0	3.0
Recall Mode	None			None	None		C-Max			C-Max	C-Max	C-Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	10.0			85.8		5.0		107.7			30.6	30.6
Actuated g/C Ratio	0.07			0.64		0.04		0.80			0.23	0.23
v/c Ratio	0.22			0.33		0.02		5.77dl			0.85	0.03
Control Delay	62.8			1.3		0.1		11.0			63.8	0.1
Queue Delay	0.0			0.0		0.0		0.0			0.0	0.0

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Fr _t		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	12.0	22.0
Total Split (s)	27.0	22.0
Total Split (%)	20%	16%
Maximum Green (s)	20.0	18.0
Yellow Time (s)	3.0	4.0
All-Red Time (s)	4.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	2.0	3.0
Recall Mode	None	None
Walk Time (s)		5.0
Flash Dont Walk (s)		12.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 Sat ALT2 C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	62.8		1.3		0.1			11.0			63.8	0.1
LOS	E		A		A			B			E	A
Approach Delay		4.0			0.1			11.0			62.3	
Approach LOS		A			A			B			E	
Queue Length 50th (ft)	25		0		0			153			228	0
Queue Length 95th (ft)	44		24		0			318			#320	0
Internal Link Dist (ft)		426			33			983			366	
Turn Bay Length (ft)												80
Base Capacity (vph)	257		2021		672			1486			609	488
Starvation Cap Reductn	0		0		0			0			0	0
Spillback Cap Reductn	0		0		0			0			0	0
Storage Cap Reductn	0		0		0			0			0	0
Reduced v/c Ratio	0.12		0.33		0.02			0.73			0.85	0.03

Intersection Summary

Area Type: Other

Cycle Length: 134.1

Actuated Cycle Length: 134.1

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow, Master Intersection

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 20.6

Intersection LOS: C

Intersection Capacity Utilization 62.9%

ICU Level of Service B

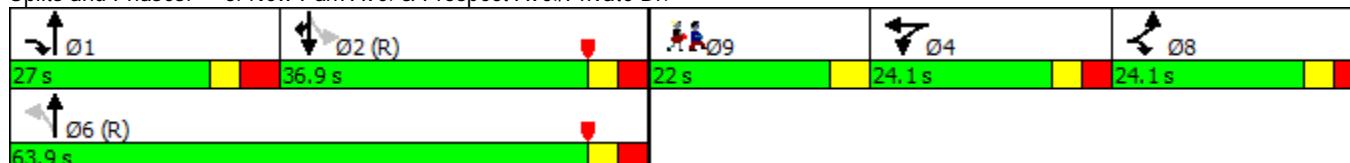
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: New Park Ave. & Prospect Ave./Private Dr.



Lane Group	Ø1	Ø9
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor
2030 Sat ALT2 C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↓			↑↑		↑↑	↑↑	↑
Traffic Volume (vph)	20	0	590	0	0	10	510	470	0	10	430	10
Future Volume (vph)	20	0	590	0	0	10	510	470	0	10	430	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		7.0		6.1			7.0			6.3	6.3
Lane Util. Factor	1.00		0.88		1.00			0.95			0.95	1.00
Frt	1.00		0.85		0.86			1.00			1.00	0.85
Flt Protected	0.95		1.00		1.00			0.98			1.00	1.00
Satd. Flow (prot)	1805		2787		1644			3488			3563	1615
Flt Permitted	0.95		1.00		1.00			0.52			0.75	1.00
Satd. Flow (perm)	1805		2787		1644			1853			2674	1615
Peak-hour factor, PHF	0.67	0.92	0.89	0.50	0.50	0.92	0.95	0.86	0.75	0.25	0.90	0.75
Adj. Flow (vph)	30	0	663	0	0	11	537	547	0	40	478	13
RTOR Reduction (vph)	0	0	264	0	11	0	0	0	0	0	0	10
Lane Group Flow (vph)	30	0	399	0	0	0	0	1084	0	0	518	3
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	0%	0%	1%	0%
Turn Type	Prot		custom		NA		custom	NA		Perm	NA	Prot
Protected Phases	8		1 8	4	4			1 6			2	2
Permitted Phases							6			2		
Actuated Green, G (s)	10.0		85.8		2.0			104.7			26.9	26.9
Effective Green, g (s)	10.0		80.8		2.0			104.7			26.9	26.9
Actuated g/C Ratio	0.07		0.60		0.01			0.78			0.20	0.20
Clearance Time (s)	5.0				6.1						6.3	6.3
Vehicle Extension (s)	2.0				2.0						3.0	3.0
Lane Grp Cap (vph)	134		1679		24			1446			536	323
v/s Ratio Prot	0.02		c0.14		c0.00							0.00
v/s Ratio Perm							c0.59			c0.19		
v/c Ratio	0.22		0.24		0.01			5.77dl			0.97	0.01
Uniform Delay, d1	58.4		12.4		65.1			7.8			53.2	42.9
Progression Factor	1.00		1.00		1.00			1.00			1.00	1.00
Incremental Delay, d2	0.3		0.0		0.0			1.9			31.4	0.0
Delay (s)	58.7		12.4		65.1			9.7			84.6	43.0
Level of Service	E		B		E			A			F	D
Approach Delay (s)		14.4			65.1			9.7			83.5	
Approach LOS		B			E			A			F	

Intersection Summary

HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	134.1	Sum of lost time (s)	28.4
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Appendix G

Intersection Capacity Analysis Worksheets
Alternatives 3&4 Traffic Volumes
Morning Peak Hour

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 AM ALT3

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑↑		
Traffic Volume (vph)	640	860	20	10	630	360	20	0	0	300	10	190
Future Volume (vph)	640	860	20	10	630	360	20	0	0	300	10	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	12	12	12	12	12	12	11	12	11
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.989				0.850					0.944	
Flt Protected	0.950				0.997			0.950			0.972	
Satd. Flow (prot)	1652	3213	0	0	3406	1599	0	1805	0	0	3239	0
Flt Permitted	0.116				0.793			0.950			0.972	
Satd. Flow (perm)	202	3213	0	0	2709	1599	0	1805	0	0	3239	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		8									67	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		386			245			138			227	
Travel Time (s)		8.8			5.6			3.1			5.2	
Peak Hour Factor	0.94	0.93	0.27	0.25	0.87	0.85	0.50	0.25	0.25	0.79	0.25	0.76
Heavy Vehicles (%)	2%	4%	0%	0%	6%	1%	0%	0%	0%	2%	0%	3%
Adj. Flow (vph)	681	925	74	40	724	424	40	0	0	380	40	250
Shared Lane Traffic (%)												
Lane Group Flow (vph)	681	999	0	0	764	424	0	40	0	0	670	0
Turn Type	D.P+P	NA		Perm	NA	pt+ov	Split	NA		Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2			2								
Detector Phase	1	1 2		2	2	2 4	5	5		4	4	
Switch Phase												
Minimum Initial (s)	5.0			15.0	15.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5			22.9	22.9		13.0	13.0		13.0	13.0	
Total Split (s)	36.0			44.0	44.0		13.0	13.0		27.0	27.0	
Total Split (%)	24.0%			29.3%	29.3%		8.7%	8.7%		18.0%	18.0%	
Maximum Green (s)	32.0			36.1	36.1		5.0	5.0		19.0	19.0	
Yellow Time (s)	3.0			3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0			4.9	4.9		5.0	5.0		5.0	5.0	
Lost Time Adjust (s)	0.0			0.0			0.0			0.0		
Total Lost Time (s)	4.0			7.9			8.0			8.0		
Lead/Lag	Lead			Lag	Lag				Lag	Lag		
Lead-Lag Optimize?	Yes			Yes	Yes				Yes	Yes		
Vehicle Extension (s)	1.5			2.5	2.5		1.5	1.5		1.5	1.5	
Recall Mode	None			C-Max	C-Max		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	76.8	80.8			36.1	88.3		7.6			44.2	
Actuated g/C Ratio	0.51	0.54			0.24	0.59		0.05			0.29	
v/c Ratio	1.48	0.58			1.17	0.45		0.44			0.67	
Control Delay	262.0	25.0			142.4	19.8		83.2			46.1	
Queue Delay	0.0	0.0			0.0	0.0		0.0			0.0	
Total Delay	262.0	25.0			142.4	19.8		83.2			46.1	
LOS	F	C			F	B		F			D	

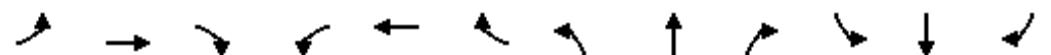
Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	20%
Maximum Green (s)	26.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	19.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 AM ALT3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		121.1			98.7			83.2			46.1	
Approach LOS			F			F			F			D
Queue Length 50th (ft)	~876	336		~467	231		39			281		
Queue Length 95th (ft)	#1141	413		#568	301		22			60		
Internal Link Dist (ft)		306			165			58			147	
Turn Bay Length (ft)												
Base Capacity (vph)	459	1734			651	941		91			1001	
Starvation Cap Reductn	0	0			0	0		0			0	
Spillback Cap Reductn	0	0			0	0		0			0	
Storage Cap Reductn	0	0			0	0		0			0	
Reduced v/c Ratio	1.48	0.58			1.17	0.45		0.44			0.67	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.48

Intersection Signal Delay: 99.2

Intersection LOS: F

Intersection Capacity Utilization 86.7%

ICU Level of Service E

Analysis Period (min) 15

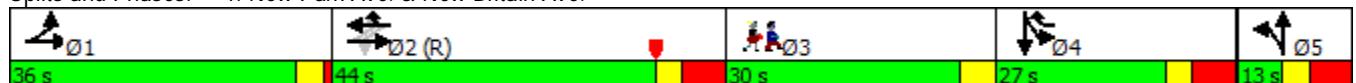
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: New Park Ave. & New Britain Ave.



Lane Group	Ø3
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 AM ALT3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑↑		↑↑	↑↑	
Traffic Volume (vph)	640	860	20	10	630	360	20	0	0	300	10	190
Future Volume (vph)	640	860	20	10	630	360	20	0	0	300	10	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12	12	12	12	11	12	11
Total Lost time (s)	4.0	4.0			7.9	7.9		8.0			8.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00			0.95	
Frt	1.00	0.99			1.00	0.85		1.00			0.94	
Flt Protected	0.95	1.00			1.00	1.00		0.95			0.97	
Satd. Flow (prot)	1652	3213			3407	1599		1805			3241	
Flt Permitted	0.12	1.00			0.79	1.00		0.95			0.97	
Satd. Flow (perm)	202	3213			2708	1599		1805			3241	
Peak-hour factor, PHF	0.94	0.93	0.27	0.25	0.87	0.85	0.50	0.25	0.25	0.79	0.25	0.76
Adj. Flow (vph)	681	925	74	40	724	424	40	0	0	380	40	250
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	47	0
Lane Group Flow (vph)	681	995	0	0	764	424	0	40	0	0	623	0
Heavy Vehicles (%)	2%	4%	0%	0%	6%	1%	0%	0%	0%	2%	0%	3%
Turn Type	D.P+P	NA		Perm	NA	pt+ov	Split	NA		Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2			2								
Actuated Green, G (s)	71.3	75.3			34.5	86.6		6.6			44.2	
Effective Green, g (s)	71.3	75.3			34.5	86.6		6.6			44.2	
Actuated g/C Ratio	0.48	0.50			0.23	0.58		0.04			0.29	
Clearance Time (s)	4.0				7.9			8.0			8.0	
Vehicle Extension (s)	1.5				2.5			1.5			1.5	
Lane Grp Cap (vph)	451	1612			622	923		79			955	
v/s Ratio Prot	c0.37	0.31				0.27		c0.02			c0.19	
v/s Ratio Perm	c0.35				0.28							
v/c Ratio	1.51	0.62			1.23	0.46		0.51			0.65	
Uniform Delay, d1	46.1	27.0			57.8	18.2		70.1			46.2	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	240.8	0.5			116.5	0.1		1.9			1.2	
Delay (s)	286.9	27.5			174.2	18.4		72.0			47.4	
Level of Service	F	C			F	B		E			D	
Approach Delay (s)		132.6			118.6			72.0			47.4	
Approach LOS		F			F			E			D	
Intersection Summary												
HCM 2000 Control Delay		111.3			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.18										
Actuated Cycle Length (s)		150.0			Sum of lost time (s)			31.9				
Intersection Capacity Utilization		86.7%			ICU Level of Service			E				
Analysis Period (min)		15										

c Critical Lane Group

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 AM ALT3



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations	↑	↑		↑↑	↑	↑	
Traffic Volume (vph)	200	110	120	890	410	150	
Future Volume (vph)	200	110	120	890	410	150	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	150			0	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25		25				
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00	
Fr _t		0.850			0.850		
Flt Protected	0.950			0.994			
Satd. Flow (prot)	1770	1599	0	3527	1863	1615	
Flt Permitted	0.950			0.788			
Satd. Flow (perm)	1770	1599	0	2796	1863	1615	
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)		157			185		
Link Speed (mph)	30			30	30		
Link Distance (ft)	297			639	425		
Travel Time (s)	6.8			14.5	9.7		
Peak Hour Factor	0.89	0.70	0.84	0.91	0.91	0.81	
Heavy Vehicles (%)	2%	1%	0%	2%	2%	0%	
Adj. Flow (vph)	225	157	143	978	451	185	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	225	157	0	1121	451	185	
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm	
Protected Phases	4	4	1	1 2	2		3
Permitted Phases				2		2	
Detector Phase	4	4	1	1 2	2	2	
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0		30.0	30.0	5.0
Minimum Split (s)	14.0	14.0	12.0		36.0	36.0	9.5
Total Split (s)	17.0	17.0	12.0		36.5	36.5	9.5
Total Split (%)	22.7%	22.7%	16.0%		48.7%	48.7%	13%
Maximum Green (s)	11.0	11.0	8.0		30.5	30.5	5.0
Yellow Time (s)	4.0	4.0	3.0		4.0	4.0	3.5
All-Red Time (s)	2.0	2.0	1.0		2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	
Total Lost Time (s)	6.0	6.0			6.0	6.0	
Lead/Lag	Lag	Lag	Lead		Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0	3.0
Recall Mode	None	None	None		Max	Max	None
Act Effct Green (s)	11.0	11.0		40.5	30.5	30.5	
Actuated g/C Ratio	0.17	0.17		0.62	0.47	0.47	
v/c Ratio	0.76	0.39		0.62	0.52	0.22	
Control Delay	44.8	8.1		7.5	15.0	2.6	
Queue Delay	0.0	0.0		0.0	0.4	0.0	
Total Delay	44.8	8.1		7.5	15.4	2.6	
LOS	D	A		A	B	A	
Approach Delay	29.7			7.5	11.7		

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 AM ALT3



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Approach LOS	C			A	B		
Queue Length 50th (ft)	87	0		90	120	0	
Queue Length 95th (ft)	#183	21		124	196	21	
Internal Link Dist (ft)	217			559	345		
Turn Bay Length (ft)							
Base Capacity (vph)	297	399		1818	867	850	
Starvation Cap Reductn	0	0		0	110	0	
Spillback Cap Reductn	0	0		0	0	0	
Storage Cap Reductn	0	0		0	0	0	
Reduced v/c Ratio	0.76	0.39		0.62	0.60	0.22	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 65.5

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 12.7

Intersection LOS: B

Intersection Capacity Utilization 77.5%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: New Park Ave. & Talcott Rd.



HCM Signalized Intersection Capacity Analysis
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 AM ALT3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	200	110	120	890	410	150
Future Volume (vph)	200	110	120	890	410	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.99	1.00	1.00
Satd. Flow (prot)	1770	1599		3526	1863	1615
Flt Permitted	0.95	1.00		0.79	1.00	1.00
Satd. Flow (perm)	1770	1599		2797	1863	1615
Peak-hour factor, PHF	0.89	0.70	0.84	0.91	0.91	0.81
Adj. Flow (vph)	225	157	143	978	451	185
RTOR Reduction (vph)	0	131	0	0	0	99
Lane Group Flow (vph)	225	26	0	1121	451	86
Heavy Vehicles (%)	2%	1%	0%	2%	2%	0%
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases			2			2
Actuated Green, G (s)	11.0	11.0		38.5	30.5	30.5
Effective Green, g (s)	11.0	11.0		38.5	30.5	30.5
Actuated g/C Ratio	0.17	0.17		0.59	0.47	0.47
Clearance Time (s)	6.0	6.0			6.0	6.0
Vehicle Extension (s)	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	297	268		1733	867	752
v/s Ratio Prot	c0.13	0.02		c0.08	0.24	
v/s Ratio Perm				c0.30		0.05
v/c Ratio	0.76	0.10		0.65	0.52	0.11
Uniform Delay, d1	26.0	23.1		9.0	12.3	9.9
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	11.2	0.2		0.9	2.2	0.3
Delay (s)	37.1	23.3		9.9	14.6	10.2
Level of Service	D	C		A	B	B
Approach Delay (s)	31.4			9.9	13.3	
Approach LOS	C			A	B	
Intersection Summary						
HCM 2000 Control Delay		14.8		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.74				
Actuated Cycle Length (s)		65.5		Sum of lost time (s)		20.5
Intersection Capacity Utilization		77.5%		ICU Level of Service		D
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 AM ALT3

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	10	70	10	110	10	960	120	70	480	20
Future Volume (vph)	10	0	10	70	10	110	10	960	120	70	480	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	250		100
Storage Lanes	0		0	0		1	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95
Frt							0.850					0.989
Flt Protected						0.968						0.950
Satd. Flow (prot)	0	1717	0	0	1780	1553	0	3495	0	1736	3537	0
Flt Permitted						0.763						0.170
Satd. Flow (perm)	0	1406	0	0	1403	1553	0	3306	0	311	3537	0
Right Turn on Red				Yes			Yes			Yes		Yes
Satd. Flow (RTOR)		182				182			30			16
Link Speed (mph)		30			30			30				30
Link Distance (ft)		156			393			425				656
Travel Time (s)		3.5			8.9			9.7				14.9
Peak Hour Factor	0.38	0.25	0.30	0.87	0.25	0.79	0.56	0.94	0.85	0.79	0.86	0.48
Heavy Vehicles (%)	0%	0%	0%	5%	0%	4%	0%	1%	4%	4%	1%	0%
Adj. Flow (vph)	26	0	33	80	40	139	18	1021	141	89	558	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	59	0	0	120	139	0	1180	0	89	600	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1		2
Permitted Phases	4			4		4	2			2		
Detector Phase	4	4		4	4	4	2	2		1		2
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		5.0		8.0
Minimum Split (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		9.5		12.0
Total Split (s)	12.0	12.0		12.0	12.0	12.0	29.0	29.0		9.5		29.0
Total Split (%)	20.0%	20.0%		20.0%	20.0%	20.0%	48.3%	48.3%		15.8%		48.3%
Maximum Green (s)	8.0	8.0		8.0	8.0	8.0	25.0	25.0		5.0		25.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.5		3.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0		1.0
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0		0.0
Total Lost Time (s)		4.0			4.0	4.0		4.0		4.5		4.0
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lag	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0		4.0
Recall Mode	None	None		None	None	None	None	None		None		None
Act Effct Green (s)		9.8			9.8	9.8		25.6		25.4		25.6
Actuated g/C Ratio		0.24			0.24	0.24		0.62		0.61		0.62
v/c Ratio		0.13			0.36	0.28		0.58		0.22		0.27
Control Delay		0.6			24.0	4.0		9.4		4.7		6.7
Queue Delay		0.0			0.0	0.0		0.0		0.0		0.0
Total Delay		0.6			24.0	4.0		9.4		4.7		6.7
LOS	A			C	A		A		A	A		
Approach Delay		0.6			13.2			9.4				6.5

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	9.5
Total Split (s)	9.5
Total Split (%)	16%
Maximum Green (s)	5.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 AM ALT3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS			A		B			A			A	
Queue Length 50th (ft)		0			33	0		126		7	50	
Queue Length 95th (ft)		0			18	15		188		14	72	
Internal Link Dist (ft)		76			313			345			576	
Turn Bay Length (ft)											250	
Base Capacity (vph)	469				329	504		2066		399	2205	
Starvation Cap Reductn	0				0	0		0		0	0	
Spillback Cap Reductn	0				0	0		0		0	0	
Storage Cap Reductn	0				0	0		0		0	0	
Reduced v/c Ratio	0.13				0.36	0.28		0.57		0.22	0.27	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 41.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 8.7

Intersection LOS: A

Intersection Capacity Utilization 62.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: New Park Ave. & Colt Dr./Oakwood Ave.



Lane Group	Ø3
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 AM ALT3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	10	70	10	110	10	960	120	70	480	20
Future Volume (vph)	10	0	10	70	10	110	10	960	120	70	480	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0		4.0		4.5	4.0
Lane Util. Factor		1.00				1.00	1.00		0.95		1.00	0.95
Frt		0.92				1.00	0.85		0.98		1.00	0.99
Flt Protected		0.98				0.97	1.00		1.00		0.95	1.00
Satd. Flow (prot)		1719				1779	1553		3496		1736	3539
Flt Permitted		0.80				0.76	1.00		0.94		0.17	1.00
Satd. Flow (perm)		1408				1404	1553		3304		310	3539
Peak-hour factor, PHF	0.38	0.25	0.30	0.87	0.25	0.79	0.56	0.94	0.85	0.79	0.86	0.48
Adj. Flow (vph)	26	0	33	80	40	139	18	1021	141	89	558	42
RTOR Reduction (vph)	0	52	0	0	0	121	0	14	0	0	7	0
Lane Group Flow (vph)	0	7	0	0	120	18	0	1166	0	89	593	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	4%	0%	1%	4%	4%	1%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4				4			2		1	2
Permitted Phases	4			4			4	2			2	
Actuated Green, G (s)		5.6			5.6	5.6		23.6		26.1	23.6	
Effective Green, g (s)		5.6			5.6	5.6		23.6		26.1	23.6	
Actuated g/C Ratio		0.13			0.13	0.13		0.53		0.59	0.53	
Clearance Time (s)		4.0			4.0	4.0		4.0		4.5	4.0	
Vehicle Extension (s)		4.0			4.0	4.0		4.0		3.0	4.0	
Lane Grp Cap (vph)	178			177	196		1764			263	1889	
v/s Ratio Prot										c0.02	0.17	
v/s Ratio Perm		0.01			c0.09	0.01		c0.35		0.18		
v/c Ratio		0.04			0.68	0.09		0.66		0.34	0.31	
Uniform Delay, d1		16.9			18.4	17.0		7.4		4.6	5.8	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.1			10.7	0.3		1.0		0.8	0.1	
Delay (s)		17.1			29.2	17.3		8.5		5.3	5.9	
Level of Service		B			C	B		A		A	A	
Approach Delay (s)		17.1			22.8			8.5			5.8	
Approach LOS		B			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		9.6			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.74										
Actuated Cycle Length (s)		44.2			Sum of lost time (s)			17.0				
Intersection Capacity Utilization		62.4%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 AM ALT3

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑		↔		↑	↑↓			↓	↑
Traffic Volume (vph)	160	0	90	0	0	10	130	910	10	10	500	190
Future Volume (vph)	160	0	90	0	0	10	130	910	10	10	500	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	315		0	100		0
Storage Lanes	1		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850		0.865			0.995				0.850
Flt Protected	0.950	0.950					0.950				0.999	
Satd. Flow (prot)	1649	1649	1553	0	1644	0	1770	3524	0	0	1880	1568
Flt Permitted	0.950	0.950					0.270				0.980	
Satd. Flow (perm)	1649	1649	1553	0	1644	0	503	3524	0	0	1844	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113			578		4				226
Link Speed (mph)			30			30		30				30
Link Distance (ft)			189			135		656				262
Travel Time (s)			4.3			3.1		14.9				6.0
Peak Hour Factor	0.78	0.38	0.80	0.50	0.25	0.38	0.78	0.94	0.33	1.00	0.93	0.84
Heavy Vehicles (%)	4%	0%	4%	0%	0%	0%	2%	2%	0%	0%	1%	3%
Adj. Flow (vph)	205	0	113	0	0	26	167	968	30	10	538	226
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	102	103	113	0	26	0	167	998	0	0	548	226
Turn Type	Split	NA	pt+ov		NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	8	8	8 1	7	7		1	6		5	2	
Permitted Phases							6			2		2
Detector Phase	8	8	8 1	7	7		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	6.0	6.0		4.0	4.0		4.0	4.0		6.0	6.0	6.0
Minimum Split (s)	10.0	10.0		8.0	8.0		8.0	8.0		10.0	10.0	10.0
Total Split (s)	10.0	10.0		8.0	8.0		8.0	25.0		10.0	27.0	27.0
Total Split (%)	12.5%	12.5%		10.0%	10.0%		10.0%	31.3%		12.5%	33.8%	33.8%
Maximum Green (s)	6.0	6.0		4.0	4.0		4.9	21.0		6.0	23.0	23.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		0.1	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0			3.1	4.0		4.0	4.0	
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	None		None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	6.0	6.0	14.1		4.0		32.0	31.1			23.1	23.1
Actuated g/C Ratio	0.13	0.13	0.30		0.09		0.69	0.67			0.50	0.50
v/c Ratio	0.48	0.49	0.21		0.04		0.35	0.42			0.60	0.25
Control Delay	29.5	29.7	4.9		0.1		5.2	4.7			12.6	2.4
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0			0.0	0.0

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	34%
Maximum Green (s)	25.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	4.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 AM ALT3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	29.5	29.7	4.9		0.1		5.2	4.7			12.6	2.4
LOS	C	C	A		A		A	A			B	A
Approach Delay		20.8			0.1			4.8			9.6	
Approach LOS		C			A			A			A	
Queue Length 50th (ft)	26	26	0		0		9	41			87	0
Queue Length 95th (ft)	63	29	23		0		33	117			225	25
Internal Link Dist (ft)		109			55			576			182	
Turn Bay Length (ft)							315					
Base Capacity (vph)	212	212	547		669		479	2355			914	890
Starvation Cap Reductn	0	0	0		0		0	0			0	0
Spillback Cap Reductn	0	0	0		0		0	0			0	0
Storage Cap Reductn	0	0	0		0		0	0			0	0
Reduced v/c Ratio	0.48	0.49	0.21		0.04		0.35	0.42			0.60	0.25

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 46.6

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 8.6

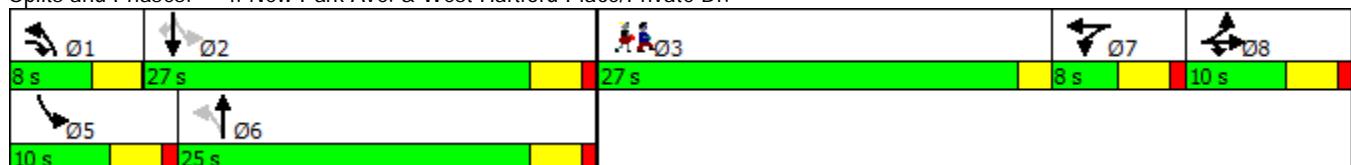
Intersection LOS: A

Intersection Capacity Utilization 73.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 4: New Park Ave. & West Hartford Place/Private Dr.



Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor
2030 AM ALT3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑		↔		↑	↑↓			↓	↑
Traffic Volume (vph)	160	0	90	0	0	10	130	910	10	10	500	190
Future Volume (vph)	160	0	90	0	0	10	130	910	10	10	500	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		3.1	4.0			4.0	4.0
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	0.95			1.00	1.00
Frt	1.00	1.00	0.85		0.86		1.00	1.00			1.00	0.85
Flt Protected	0.95	0.95	1.00		1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1649	1649	1553		1644		1770	3525			1880	1568
Flt Permitted	0.95	0.95	1.00		1.00		0.27	1.00			0.98	1.00
Satd. Flow (perm)	1649	1649	1553		1644		503	3525			1844	1568
Peak-hour factor, PHF	0.78	0.38	0.80	0.50	0.25	0.38	0.78	0.94	0.33	1.00	0.93	0.84
Adj. Flow (vph)	205	0	112	0	0	26	167	968	30	10	538	226
RTOR Reduction (vph)	0	0	79	0	26	0	0	2	0	0	0	121
Lane Group Flow (vph)	102	103	34	0	0	0	167	996	0	0	548	105
Heavy Vehicles (%)	4%	0%	4%	0%	0%	0%	2%	2%	0%	0%	1%	3%
Turn Type	Split	NA	pt+ov		NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	8	8	8 1	7	7		1	6		5	2	
Permitted Phases							6			2		2
Actuated Green, G (s)	6.0	6.0	14.9		0.7		31.1	31.1			23.1	23.1
Effective Green, g (s)	6.0	6.0	14.9		0.7		31.1	31.1			23.1	23.1
Actuated g/C Ratio	0.12	0.12	0.30		0.01		0.62	0.62			0.46	0.46
Clearance Time (s)	4.0	4.0			4.0		3.1	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	198	198	464		23		438	2201			855	727
v/s Ratio Prot	0.06	c0.06	0.02		c0.00		0.04	c0.28				
v/s Ratio Perm							0.20				c0.30	0.07
v/c Ratio	0.52	0.52	0.07		0.02		0.38	0.45			0.64	0.14
Uniform Delay, d1	20.5	20.5	12.5		24.2		5.3	4.9			10.2	7.7
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	2.3	2.5	0.1		0.3		0.6	0.1			1.7	0.1
Delay (s)	22.8	23.0	12.6		24.5		5.9	5.0			11.8	7.8
Level of Service	C	C	B		C		A	A			B	A
Approach Delay (s)		19.2			24.5			5.2			10.6	
Approach LOS		B			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			9.2				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			49.8				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			73.4%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 AM ALT3

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑	↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	30	330	150	250	190	360	130	620	330	290	320	40
Future Volume (vph)	30	330	150	250	190	360	130	620	330	290	320	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	0		0	150		0	300		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	0.91	0.91	0.95	1.00	0.95	0.95
Frt		0.949				0.850		0.951			0.974	
Flt Protected	0.950			0.950			0.950	0.999		0.950		
Satd. Flow (prot)	1787	3381	0	1770	1863	1538	1579	3139	0	1770	3349	0
Flt Permitted	0.623			0.115			0.517	0.947		0.144		
Satd. Flow (perm)	1172	3381	0	214	1863	1538	860	2976	0	268	3349	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53				402		56			18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		282			376			287			453	
Travel Time (s)		6.4			8.5			6.5			10.3	
Peak Hour Factor	0.70	0.77	0.68	0.87	0.88	0.86	0.80	0.88	0.94	0.91	0.97	0.59
Heavy Vehicles (%)	1%	1%	2%	2%	2%	5%	4%	4%	6%	2%	5%	5%
Adj. Flow (vph)	43	429	221	287	216	419	163	705	351	319	330	68
Shared Lane Traffic (%)						10%						
Lane Group Flow (vph)	43	650	0	287	216	419	147	1072	0	319	398	0
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6			2		
Detector Phase	7	4		3	8	8	1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	9.0		5.0	9.0	9.0	6.0	15.0		6.0	15.0	
Minimum Split (s)	9.5	14.0		9.5	14.0	14.0	10.5	20.1		10.5	20.1	
Total Split (s)	9.5	30.0		24.0	44.5	44.5	14.5	50.3		23.2	59.0	
Total Split (%)	6.3%	20.0%		16.0%	29.7%	29.7%	9.7%	33.5%		15.5%	39.3%	
Maximum Green (s)	5.5	25.0		20.0	39.5	39.5	10.5	45.2		19.2	53.9	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.6		3.0	3.6	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes				Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	38.8	32.2		59.9	51.1	77.9	56.6	54.4		73.1	57.7	
Actuated g/C Ratio	0.26	0.21		0.40	0.34	0.52	0.38	0.36		0.49	0.38	
v/c Ratio	0.13	0.85		0.89	0.34	0.42	0.39	0.95		0.89	0.31	
Control Delay	33.4	62.7		69.9	41.6	4.4	27.3	58.5		58.1	32.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	22.5
Total Split (s)	22.5
Total Split (%)	15%
Maximum Green (s)	18.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	10
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 AM ALT3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	33.4	62.7		69.9	41.6	4.4	27.3	58.5		58.1	32.0	
LOS	C	E		E	D	A	C	E		E	C	
Approach Delay		60.9			33.5			54.7			43.6	
Approach LOS		E			C			D			D	
Queue Length 50th (ft)	24	290		209	151	7	84	408		207	134	
Queue Length 95th (ft)	45	#354		#424	253	60	127	#557		#434	187	
Internal Link Dist (ft)		202			296			207			373	
Turn Bay Length (ft)	50						150			300		
Base Capacity (vph)	327	767		321	634	991	378	1124		358	1298	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.13	0.85		0.89	0.34	0.42	0.39	0.95		0.89	0.31	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 48.2

Intersection LOS: D

Intersection Capacity Utilization 80.8%

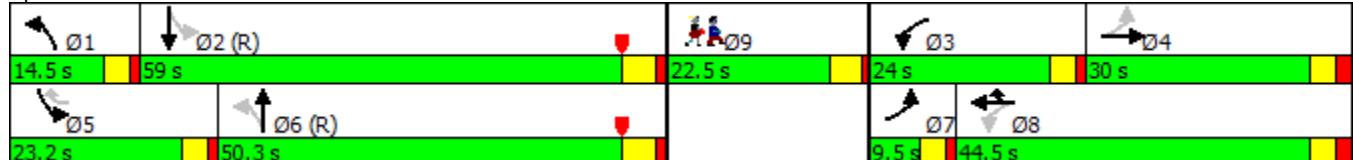
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: New Park Ave. & Flatbush Ave./Flatbush Ave.



Lane Group	Ø9
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor
2030 AM ALT3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑	↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	30	330	150	250	190	360	130	620	330	290	320	40
Future Volume (vph)	30	330	150	250	190	360	130	620	330	290	320	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	0.85	1.00	0.91		1.00	0.95	
Frt	1.00	0.95		1.00	1.00	0.95	1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	3381		1770	1863	1538	1579	3140		1770	3350	
Flt Permitted	0.62	1.00		0.12	1.00	1.00	0.52	0.95		0.14	1.00	
Satd. Flow (perm)	1172	3381		215	1863	1538	860	2974		269	3350	
Peak-hour factor, PHF	0.70	0.77	0.68	0.87	0.88	0.86	0.80	0.88	0.94	0.91	0.97	0.59
Adj. Flow (vph)	43	429	221	287	216	419	162	705	351	319	330	68
RTOR Reduction (vph)	0	41	0	0	0	204	0	37	0	0	11	0
Lane Group Flow (vph)	43	609	0	287	216	215	147	1035	0	319	387	0
Heavy Vehicles (%)	1%	1%	2%	2%	2%	5%	4%	4%	6%	2%	5%	5%
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6			2		
Actuated Green, G (s)	37.6	33.0		59.7	51.1	73.9	52.0	52.0		68.5	54.2	
Effective Green, g (s)	37.6	33.0		59.7	51.1	73.9	52.0	52.0		68.5	54.2	
Actuated g/C Ratio	0.25	0.22		0.40	0.34	0.49	0.35	0.35		0.46	0.36	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	312	743		320	634	808	347	1042		350	1210	
v/s Ratio Prot	0.00	0.18	c0.14	0.12	0.09	0.03	0.07		c0.14	0.12		
v/s Ratio Perm	0.03		c0.22		0.05	0.12	c0.28			0.28		
v/c Ratio	0.14	0.82	0.90	0.34	0.27	0.42	0.99			0.91	0.32	
Uniform Delay, d1	43.2	55.7		42.8	36.9	22.2	35.3	48.8		35.4	34.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	6.7		25.4	0.1	0.1	0.3	26.2		26.6	0.7	
Delay (s)	43.2	62.3		68.1	37.0	22.3	35.6	75.0		62.0	35.3	
Level of Service	D	E		E	D	C	D	E		E	D	
Approach Delay (s)		61.2			40.0			70.2			47.2	
Approach LOS		E			D			E			D	
Intersection Summary												
HCM 2000 Control Delay		56.0										E
HCM 2000 Volume to Capacity ratio		0.90										
Actuated Cycle Length (s)		150.0										22.6
Intersection Capacity Utilization		80.8%										D
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 AM ALT3

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↓		↑	↑		↑↑	↑↑	↑
Traffic Volume (vph)	10	0	340	0	0	0	460	550	10	0	260	10
Future Volume (vph)	10	0	340	0	0	0	460	550	10	0	260	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	0		80
Storage Lanes	1		2	0		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850					0.991				0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1805	0	2760	0	1900	0	1770	1831	0	0	3406	1615
Flt Permitted	0.950						0.235					
Satd. Flow (perm)	1805	0	2760	0	1900	0	438	1831	0	0	3406	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			343					3				183
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		506			113			610			446	
Travel Time (s)		11.5			2.6			13.9			10.1	
Peak Hour Factor	0.75	0.92	0.99	0.25	0.25	0.25	0.97	0.89	0.25	0.25	0.85	0.62
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	2%	3%	0%	0%	6%	0%
Adj. Flow (vph)	13	0	343	0	0	0	474	618	40	0	306	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	0	343	0	0	0	474	658	0	0	306	16
Turn Type	Prot		custom				custom	NA			NA	Prot
Protected Phases	8		1 8	4	4			1 6			2	2
Permitted Phases							6			2		
Detector Phase	8		1 8	4	4		6	1 6		2	2	2
Switch Phase												
Minimum Initial (s)	10.0			5.0	5.0		15.0			15.0	15.0	15.0
Minimum Split (s)	15.0			24.1	24.1		21.3			21.3	21.3	21.3
Total Split (s)	24.1			24.1	24.1		43.9			21.9	21.9	21.9
Total Split (%)	21.1%			21.1%	21.1%		38.5%			19.2%	19.2%	19.2%
Maximum Green (s)	19.1			18.0	18.0		37.6			15.6	15.6	15.6
Yellow Time (s)	3.0			3.0	3.0		3.0			3.0	3.0	3.0
All-Red Time (s)	2.0			3.1	3.1		3.3			3.3	3.3	3.3
Lost Time Adjust (s)	0.0			0.0	0.0		0.0			0.0	0.0	0.0
Total Lost Time (s)	5.0			6.1	6.1		6.3			6.3	6.3	6.3
Lead/Lag			Lag		Lag				Lag	Lag	Lag	
Lead-Lag Optimize?			Yes		Yes				Yes	Yes	Yes	
Vehicle Extension (s)	2.0			2.0	2.0		3.0			3.0	3.0	3.0
Recall Mode	None			None	None		Max			None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	10.0		30.0				37.6	36.9			15.6	15.6
Actuated g/C Ratio	0.17		0.51				0.64	0.63			0.26	0.26
v/c Ratio	0.04		0.22				1.70	0.57			0.34	0.03
Control Delay	21.0		1.5				347.9	8.9			18.8	0.1
Queue Delay	0.0		0.0				0.0	0.0			0.0	0.0

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Fr _t		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	12.0	22.0
Total Split (s)	22.0	22.0
Total Split (%)	19%	19%
Maximum Green (s)	15.0	18.0
Yellow Time (s)	3.0	4.0
All-Red Time (s)	4.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	2.0	3.0
Recall Mode	None	None
Walk Time (s)		5.0
Flash Dont Walk (s)		12.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 AM ALT3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	21.0		1.5				347.9	8.9			18.8	0.1
LOS	C		A				F	A			B	A
Approach Delay		2.2						150.8			17.9	
Approach LOS		A						F			B	
Queue Length 50th (ft)	4		0				~158	114			45	0
Queue Length 95th (ft)	13		17				#320	187			71	0
Internal Link Dist (ft)		426			33			530			366	
Turn Bay Length (ft)							200					80
Base Capacity (vph)	585		1574				279	1148			902	562
Starvation Cap Reductn	0		0				0	0			0	0
Spillback Cap Reductn	0		0				0	0			0	0
Storage Cap Reductn	0		0				0	0			0	0
Reduced v/c Ratio	0.02		0.22				1.70	0.57			0.34	0.03

Intersection Summary

Area Type: Other

Cycle Length: 114.1

Actuated Cycle Length: 58.9

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.70

Intersection Signal Delay: 97.9

Intersection LOS: F

Intersection Capacity Utilization 59.8%

ICU Level of Service B

Analysis Period (min) 15

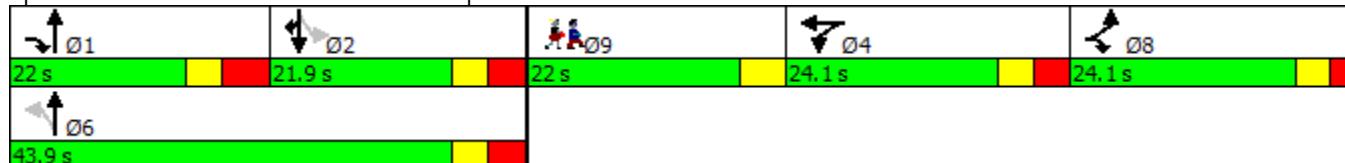
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: New Park Ave. & Prospect Ave./Private Dr.



Lane Group	Ø1	Ø9
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor
2030 AM ALT3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↔		↑	↑		↑↑	↑↑	↑
Traffic Volume (vph)	10	0	340	0	0	0	460	550	10	0	260	10
Future Volume (vph)	10	0	340	0	0	0	460	550	10	0	260	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0						6.3	7.0			6.3	6.3
Lane Util. Factor	1.00						1.00	1.00			0.95	1.00
Frt	1.00						1.00	0.99			1.00	0.85
Flt Protected	0.95						0.95	1.00			1.00	1.00
Satd. Flow (prot)	1805			2760			1770	1831			3406	1615
Flt Permitted	0.95			1.00			0.23	1.00			1.00	1.00
Satd. Flow (perm)	1805			2760			437	1831			3406	1615
Peak-hour factor, PHF	0.75	0.92	0.99	0.25	0.25	0.25	0.97	0.89	0.25	0.25	0.85	0.62
Adj. Flow (vph)	13	0	343	0	0	0	474	618	40	0	306	16
RTOR Reduction (vph)	0	0	197	0	0	0	0	1	0	0	0	12
Lane Group Flow (vph)	13	0	146	0	0	0	474	657	0	0	306	4
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	2%	3%	0%	0%	6%	0%
Turn Type	Prot		custom				custom	NA			NA	Prot
Protected Phases	8		1 8	4	4			1 6			2	2
Permitted Phases							6			2		
Actuated Green, G (s)	10.0		30.0				37.6	37.6			15.6	15.6
Effective Green, g (s)	10.0		25.0				37.6	37.6			15.6	15.6
Actuated g/C Ratio	0.17		0.42				0.64	0.64			0.26	0.26
Clearance Time (s)	5.0						6.3				6.3	6.3
Vehicle Extension (s)	2.0						3.0				3.0	3.0
Lane Grp Cap (vph)	306		1171				278	1168			902	427
v/s Ratio Prot	0.01		c0.05					0.36			0.09	0.00
v/s Ratio Perm							c1.08					
v/c Ratio	0.04		0.12				1.71	0.56			0.34	0.01
Uniform Delay, d1	20.4		10.3				10.6	6.0			17.5	16.0
Progression Factor	1.00		1.00				1.00	1.00			1.00	1.00
Incremental Delay, d2	0.0		0.0				332.2	0.4			0.2	0.0
Delay (s)	20.5		10.3				342.9	6.4			17.7	16.0
Level of Service	C		B				F	A			B	B
Approach Delay (s)		10.7			0.0			147.3			17.6	
Approach LOS		B			A			F			B	
Intersection Summary												
HCM 2000 Control Delay		97.3			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		2.14										
Actuated Cycle Length (s)		58.9			Sum of lost time (s)			28.4				
Intersection Capacity Utilization		59.8%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

Appendix G

Intersection Capacity Analysis Worksheets
Alternatives 3&4 Traffic Volumes
Afternoon Peak Hour

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 PM ALT3

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑↑		
Traffic Volume (vph)	330	970	10	10	990	460	10	10	10	550	10	410
Future Volume (vph)	330	970	10	10	990	460	10	10	10	550	10	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	12	12	12	12	12	12	11	12	11
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.998				0.850					0.938	
Flt Protected		0.950				0.998				0.984		0.972
Satd. Flow (prot)	1668	3302	0	0	3507	1599	0	1609	0	0	3184	0
Flt Permitted		0.089				0.764				0.984		0.972
Satd. Flow (perm)	156	3302	0	0	2685	1599	0	1609	0	0	3184	0
Right Turn on Red			Yes				No			Yes		Yes
Satd. Flow (RTOR)		1							12		102	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		386			245			138			229	
Travel Time (s)		8.8			5.6			3.1			5.2	
Peak Hour Factor	0.92	0.95	0.75	0.25	0.91	0.86	0.25	0.25	0.25	0.89	0.50	0.91
Heavy Vehicles (%)	1%	1%	67%	50%	1%	1%	0%	0%	33%	2%	100%	1%
Adj. Flow (vph)	359	1021	13	40	1088	535	40	40	40	618	20	451
Shared Lane Traffic (%)												
Lane Group Flow (vph)	359	1034	0	0	1128	535	0	120	0	0	1089	0
Turn Type	D.P+P	NA		Perm	NA	pt+ov	Split	NA		Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2			2								
Detector Phase	1	1 2		2	2	2 4	5	5		4	4	
Switch Phase												
Minimum Initial (s)	5.0			15.0	15.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5			22.9	22.9		13.0	13.0		13.0	13.0	
Total Split (s)	20.0			53.0	53.0		14.0	14.0		33.0	33.0	
Total Split (%)	13.3%			35.3%	35.3%		9.3%	9.3%		22.0%	22.0%	
Maximum Green (s)	16.0			45.1	45.1		6.0	6.0		25.0	25.0	
Yellow Time (s)	3.0			3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0			4.9	4.9		5.0	5.0		5.0	5.0	
Lost Time Adjust (s)	0.0			0.0			0.0			0.0		
Total Lost Time (s)	4.0			7.9			8.0			8.0		
Lead/Lag	Lead			Lag	Lag				Lag	Lag		
Lead-Lag Optimize?	Yes			Yes	Yes				Yes	Yes		
Vehicle Extension (s)	1.5			2.5	2.5		1.5	1.5		1.5	1.5	
Recall Mode	None			C-Max	C-Max		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	65.0	69.0			45.1	100.2		6.0			55.0	
Actuated g/C Ratio	0.43	0.46			0.30	0.67		0.04			0.37	
v/c Ratio	1.57	0.68			1.40	0.50		1.60			0.88	
Control Delay	309.3	34.6			225.6	8.1		360.8			49.9	
Queue Delay	0.0	0.0			0.0	0.0		0.0			0.0	
Total Delay	309.3	34.6			225.6	8.1		360.8			49.9	
LOS	F	C			F	A		F			D	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	20%
Maximum Green (s)	26.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	19.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 PM ALT3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		105.4			155.6			360.8			49.9	
Approach LOS		F			F			F			D	
Queue Length 50th (ft)	~447	412			~773	122		~156			484	
Queue Length 95th (ft)	#656	492			#913	154		39			235	
Internal Link Dist (ft)		306			165			58			149	
Turn Bay Length (ft)												
Base Capacity (vph)	228	1519			807	1068		75			1232	
Starvation Cap Reductn	0	0			0	0		0			0	
Spillback Cap Reductn	0	0			0	0		0			0	
Storage Cap Reductn	0	0			0	0		0			0	
Reduced v/c Ratio	1.57	0.68			1.40	0.50		1.60			0.88	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.60

Intersection Signal Delay: 118.0

Intersection LOS: F

Intersection Capacity Utilization 108.5%

ICU Level of Service G

Analysis Period (min) 15

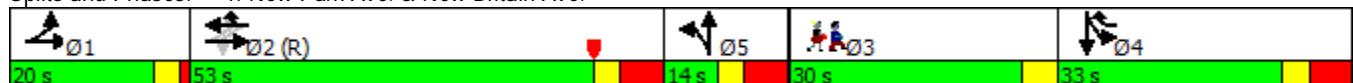
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: New Park Ave. & New Britain Ave.



Lane Group	Ø3
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 PM ALT3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑↑	↑↑	
Traffic Volume (vph)	330	970	10	10	990	460	10	10	10	550	10	410
Future Volume (vph)	330	970	10	10	990	460	10	10	10	550	10	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12	12	12	12	11	12	11
Total Lost time (s)	4.0	4.0			7.9	7.9			8.0			8.0
Lane Util. Factor	1.00	0.95			0.95	1.00			1.00			0.95
Frt	1.00	1.00			1.00	0.85			0.95			0.94
Flt Protected	0.95	1.00			1.00	1.00			0.98			0.97
Satd. Flow (prot)	1668	3303			3508	1599			1608			3185
Flt Permitted	0.09	1.00			0.76	1.00			0.98			0.97
Satd. Flow (perm)	156	3303			2684	1599			1608			3185
Peak-hour factor, PHF	0.92	0.95	0.75	0.25	0.91	0.86	0.25	0.25	0.25	0.89	0.50	0.91
Adj. Flow (vph)	359	1021	13	40	1088	535	40	40	40	618	20	451
RTOR Reduction (vph)	0	1	0	0	0	0	0	12	0	0	65	0
Lane Group Flow (vph)	359	1033	0	0	1128	535	0	108	0	0	1024	0
Heavy Vehicles (%)	1%	1%	67%	50%	1%	1%	0%	0%	33%	2%	100%	1%
Turn Type	D.P+P	NA		Perm	NA	pt+ov	Split	NA		Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2			2								
Actuated Green, G (s)	61.1	65.1			45.1	100.1			6.0			55.0
Effective Green, g (s)	61.1	65.1			45.1	100.1			6.0			55.0
Actuated g/C Ratio	0.41	0.43			0.30	0.67			0.04			0.37
Clearance Time (s)	4.0				7.9				8.0			8.0
Vehicle Extension (s)	1.5				2.5				1.5			1.5
Lane Grp Cap (vph)	224	1433			806	1067			64			1167
v/s Ratio Prot	c0.17	0.31				0.33			c0.07			c0.32
v/s Ratio Perm	c0.48				0.42							
v/c Ratio	1.60	0.72			1.40	0.50			1.70			0.88
Uniform Delay, d1	46.3	35.0			52.5	12.5			72.0			44.4
Progression Factor	1.00	1.00			1.00	1.00			1.00			1.00
Incremental Delay, d2	291.1	1.5			187.3	0.1			370.6			7.5
Delay (s)	337.4	36.5			239.7	12.6			442.6			51.8
Level of Service	F	D			F	B			F			D
Approach Delay (s)		114.1			166.7				442.6			51.8
Approach LOS		F			F				F			D
Intersection Summary												
HCM 2000 Control Delay		127.9			HCM 2000 Level of Service				F			
HCM 2000 Volume to Capacity ratio		1.32										
Actuated Cycle Length (s)		150.0			Sum of lost time (s)				31.9			
Intersection Capacity Utilization		108.5%			ICU Level of Service				G			
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 PM ALT3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	170	130	150	750	950	300	
Future Volume (vph)	170	130	150	750	950	300	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	150			0	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25		25				
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00	
Frt		0.850				0.850	
Flt Protected	0.950			0.992			
Satd. Flow (prot)	1787	1615	0	3551	1881	1615	
Flt Permitted	0.950			0.505			
Satd. Flow (perm)	1787	1615	0	1808	1881	1615	
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)		169			250		
Link Speed (mph)	30			30	30		
Link Distance (ft)	297			639	425		
Travel Time (s)	6.8			14.5	9.7		
Peak Hour Factor	0.94	0.77	0.88	0.81	0.88	0.88	
Heavy Vehicles (%)	1%	0%	0%	1%	1%	0%	
Adj. Flow (vph)	181	169	170	926	1080	341	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	181	169	0	1096	1080	341	
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm	
Protected Phases	4	4	1	1 2	2		3
Permitted Phases				2		2	
Detector Phase	4	4	1	1 2	2	2	
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0		30.0	30.0	5.0
Minimum Split (s)	14.0	14.0	12.0		36.0	36.0	9.5
Total Split (s)	19.0	19.0	12.0		56.0	56.0	13.0
Total Split (%)	19.0%	19.0%	12.0%		56.0%	56.0%	13%
Maximum Green (s)	13.0	13.0	8.0		50.0	50.0	8.5
Yellow Time (s)	4.0	4.0	3.0		4.0	4.0	3.5
All-Red Time (s)	2.0	2.0	1.0		2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	
Total Lost Time (s)	6.0	6.0			6.0	6.0	
Lead/Lag	Lag	Lag	Lead		Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0	3.0
Recall Mode	None	None	None		Max	Max	None
Act Effct Green (s)	12.6	12.6		60.0	50.0	50.0	
Actuated g/C Ratio	0.15	0.15		0.69	0.58	0.58	
v/c Ratio	0.70	0.45		0.78	0.99	0.33	
Control Delay	50.7	9.8		10.3	46.1	3.6	
Queue Delay	0.0	0.0		0.0	37.2	0.4	
Total Delay	50.7	9.8		10.3	83.3	4.0	
LOS	D	A		B	F	A	
Approach Delay	31.0			10.3	64.3		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Approach LOS	C			B	E		
Queue Length 50th (ft)	95	0		98	546	21	
Queue Length 95th (ft)	#182	33		108	#826	55	
Internal Link Dist (ft)	217			559	345		
Turn Bay Length (ft)							
Base Capacity (vph)	268	386		1414	1086	1038	
Starvation Cap Reductn	0	0		0	205	295	
Spillback Cap Reductn	0	0		0	0	0	
Storage Cap Reductn	0	0		0	0	0	
Reduced v/c Ratio	0.68	0.44		0.78	1.23	0.46	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 86.6

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 39.6

Intersection LOS: D

Intersection Capacity Utilization 97.8%

ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: New Park Ave. & Talcott Rd.



HCM Signalized Intersection Capacity Analysis
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 PM ALT3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	170	130	150	750	950	300
Future Volume (vph)	170	130	150	750	950	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.99	1.00	1.00
Satd. Flow (prot)	1787	1615		3552	1881	1615
Flt Permitted	0.95	1.00		0.51	1.00	1.00
Satd. Flow (perm)	1787	1615		1810	1881	1615
Peak-hour factor, PHF	0.94	0.77	0.88	0.81	0.88	0.88
Adj. Flow (vph)	181	169	170	926	1080	341
RTOR Reduction (vph)	0	144	0	0	0	106
Lane Group Flow (vph)	181	25	0	1096	1080	235
Heavy Vehicles (%)	1%	0%	0%	1%	1%	0%
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases			2		2	
Actuated Green, G (s)	12.6	12.6		58.0	50.0	50.0
Effective Green, g (s)	12.6	12.6		58.0	50.0	50.0
Actuated g/C Ratio	0.15	0.15		0.67	0.58	0.58
Clearance Time (s)	6.0	6.0			6.0	6.0
Vehicle Extension (s)	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	260	234		1373	1086	932
v/s Ratio Prot	c0.10	0.02		c0.07	c0.57	
v/s Ratio Perm			0.46		0.15	
v/c Ratio	0.70	0.11		0.80	0.99	0.25
Uniform Delay, d1	35.2	32.1		10.1	18.2	9.1
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.5	0.3		3.5	26.0	0.7
Delay (s)	43.6	32.4		13.7	44.2	9.7
Level of Service	D	C		B	D	A
Approach Delay (s)	38.2			13.7	35.9	
Approach LOS	D			B	D	
Intersection Summary						
HCM 2000 Control Delay		27.7	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio		0.98				
Actuated Cycle Length (s)		86.6	Sum of lost time (s)		20.5	
Intersection Capacity Utilization		97.8%	ICU Level of Service		F	
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 PM ALT3

	↑	→	↓	↗	↖	↙	↖	↑	↗	↓	↙	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	10	20	120	10	110	10	800	90	170	1110	10
Future Volume (vph)	30	10	20	120	10	110	10	800	90	170	1110	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	250		100
Storage Lanes	0		0	0		1	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95
Fr _t		0.947				0.850		0.984			0.998	
Flt Protected		0.982			0.957			0.999		0.950		
Satd. Flow (prot)	0	1767	0	0	1755	1583	0	3534	0	1770	3603	0
Flt Permitted		0.838			0.696			0.906		0.190		
Satd. Flow (perm)	0	1508	0	0	1276	1583	0	3205	0	354	3603	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36				169		21			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		156			393			425			656	
Travel Time (s)		3.5			8.9			9.7			14.9	
Peak Hour Factor	0.75	0.38	0.47	0.66	0.50	0.65	0.50	0.86	0.80	0.90	0.78	0.50
Heavy Vehicles (%)	0%	0%	0%	4%	0%	2%	0%	0%	4%	2%	0%	0%
Adj. Flow (vph)	40	26	43	182	20	169	20	930	113	189	1423	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	109	0	0	202	169	0	1063	0	189	1443	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4		4	2			2		
Detector Phase	4	4		4	4	4	2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		5.0	8.0	
Minimum Split (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		9.5	12.0	
Total Split (s)	19.0	19.0		19.0	19.0	19.0	41.5	41.5		10.0	41.5	
Total Split (%)	23.8%	23.8%		23.8%	23.8%	23.8%	51.9%	51.9%		12.5%	51.9%	
Maximum Green (s)	15.0	15.0		15.0	15.0	15.0	37.5	37.5		5.5	37.5	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.5	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		4.0			4.0	4.0		4.0		4.5	4.0	
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lag	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None	None	None	None		None	None	
Act Effct Green (s)		14.7			14.7	14.7		36.4		41.4	36.4	
Actuated g/C Ratio		0.21			0.21	0.21		0.53		0.60	0.53	
v/c Ratio		0.31			0.75	0.36		0.63		0.58	0.76	
Control Delay		19.4			45.1	6.8		13.3		12.7	16.2	
Queue Delay		0.0			0.0	0.0		0.4		0.0	0.0	
Total Delay		19.4			45.1	6.8		13.7		12.7	16.2	
LOS		B			D	A		B		B	B	
Approach Delay		19.4			27.7			13.7			15.8	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	9.5
Total Split (s)	9.5
Total Split (%)	12%
Maximum Green (s)	5.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 PM ALT3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		26			83	0		153		26	237	
Queue Length 95th (ft)		19			74	14		196		47	246	
Internal Link Dist (ft)		76			313			345			576	
Turn Bay Length (ft)											250	
Base Capacity (vph)		356			277	476		1751		324	1959	
Starvation Cap Reductn		0			0	0		241		0	0	
Spillback Cap Reductn		0			0	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.31			0.73	0.36		0.70		0.58	0.74	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 69.1

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 16.6

Intersection LOS: B

Intersection Capacity Utilization 78.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: New Park Ave. & Colt Dr./Oakwood Ave.



Lane Group	Ø3
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 PM ALT3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	10	20	120	10	110	10	800	90	170	1110	10
Future Volume (vph)	30	10	20	120	10	110	10	800	90	170	1110	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0		4.0		4.5	4.0
Lane Util. Factor		1.00				1.00	1.00		0.95		1.00	0.95
Frt		0.95				1.00	0.85		0.98		1.00	1.00
Flt Protected		0.98				0.96	1.00		1.00		0.95	1.00
Satd. Flow (prot)		1766				1755	1583		3534		1770	3602
Flt Permitted		0.84				0.70	1.00		0.91		0.19	1.00
Satd. Flow (perm)		1508				1277	1583		3203		353	3602
Peak-hour factor, PHF	0.75	0.38	0.47	0.66	0.50	0.65	0.50	0.86	0.80	0.90	0.78	0.50
Adj. Flow (vph)	40	26	43	182	20	169	20	930	112	189	1423	20
RTOR Reduction (vph)	0	28	0	0	0	133	0	10	0	0	1	0
Lane Group Flow (vph)	0	81	0	0	202	36	0	1053	0	189	1442	0
Heavy Vehicles (%)	0%	0%	0%	4%	0%	2%	0%	0%	4%	2%	0%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4				4			2		1	2
Permitted Phases	4			4		4	2				2	
Actuated Green, G (s)		14.7			14.7	14.7		36.4		41.9	36.4	
Effective Green, g (s)		14.7			14.7	14.7		36.4		41.9	36.4	
Actuated g/C Ratio		0.21				0.21	0.21		0.53		0.61	0.53
Clearance Time (s)		4.0				4.0	4.0		4.0		4.5	4.0
Vehicle Extension (s)		4.0				4.0	4.0		4.0		3.0	4.0
Lane Grp Cap (vph)		320			271	336		1687		326	1897	
v/s Ratio Prot										c0.05	c0.40	
v/s Ratio Perm		0.05				c0.16	0.02		0.33		0.30	
v/c Ratio		0.25				0.75	0.11		0.62		0.58	0.76
Uniform Delay, d1		22.6				25.4	21.9		11.5		7.3	12.9
Progression Factor		1.00				1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2		0.6				11.3	0.2		0.8		2.5	2.0
Delay (s)		23.2				36.7	22.1		12.4		9.8	14.9
Level of Service		C				D	C		B		A	B
Approach Delay (s)		23.2				30.1			12.4			14.3
Approach LOS		C				C			B			B
Intersection Summary												
HCM 2000 Control Delay		15.8			HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio		0.80										
Actuated Cycle Length (s)		69.1			Sum of lost time (s)				17.0			
Intersection Capacity Utilization		78.4%			ICU Level of Service				D			
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 PM ALT3

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑				↑	↑↓			↓	↑
Traffic Volume (vph)	290	10	240	10	10	10	190	740	10	10	990	320
Future Volume (vph)	290	10	240	10	10	10	190	740	10	10	990	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	315		0	100		0
Storage Lanes	1		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850		0.955			0.998				0.850
Flt Protected	0.950	0.955			0.984		0.950				0.999	
Satd. Flow (prot)	1698	1708	1583	0	1785	0	1787	3568	0	0	1898	1583
Flt Permitted	0.950	0.955			0.984		0.085				0.991	
Satd. Flow (perm)	1698	1708	1583	0	1785	0	160	3568	0	0	1883	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			261			11			1			187
Link Speed (mph)			30			30			30			30
Link Distance (ft)			189			135			656			231
Travel Time (s)			4.3			3.1			14.9			5.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	1%	1%	0%	0%	0%	2%
Adj. Flow (vph)	315	11	261	11	11	11	207	804	11	11	1076	348
Shared Lane Traffic (%)	48%											
Lane Group Flow (vph)	164	162	261	0	33	0	207	815	0	0	1087	348
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	8	8	8 1	7	7		1	6		5	2	
Permitted Phases							6			2		2
Detector Phase	8	8	8 1	7	7		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	6.0	6.0		4.0	4.0		5.0	5.0		6.0	5.0	5.0
Minimum Split (s)	10.0	10.0		8.0	8.0		9.5	22.5		10.0	22.5	22.5
Total Split (s)	13.0	13.0		8.0	8.0		12.7	49.5		10.0	46.8	46.8
Total Split (%)	11.8%	11.8%		7.3%	7.3%		11.5%	45.0%		9.1%	42.5%	42.5%
Maximum Green (s)	9.0	9.0		4.0	4.0		8.2	45.0		6.0	42.3	42.3
Yellow Time (s)	3.0	3.0		3.0	3.0		3.5	3.5		3.0	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0			4.5	4.5		4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Min		None	Min	Min
Walk Time (s)								7.0			7.0	7.0
Flash Dont Walk (s)								11.0			11.0	11.0
Pedestrian Calls (#/hr)								0			0	0
Act Effct Green (s)	9.0	9.0	21.8		4.0		55.1	55.1			42.4	42.4
Actuated g/C Ratio	0.12	0.12	0.28		0.05		0.71	0.71			0.55	0.55
v/c Ratio	0.83	0.81	0.41		0.32		0.72	0.32			1.05	0.37
Control Delay	69.1	66.7	5.5		36.4		29.7	4.9			63.8	6.0
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0			0.0	0.0

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	29.5
Total Split (s)	29.5
Total Split (%)	27%
Maximum Green (s)	25.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	4.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 PM ALT3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	69.1	66.7	5.5		36.4		29.7	4.9			63.8	6.0
LOS	E	E	A		D		C	A			E	A
Approach Delay		40.2			36.4			9.9			49.8	
Approach LOS		D			D			A			D	
Queue Length 50th (ft)	87	85	0		11		49	75			~630	40
Queue Length 95th (ft)	#201	#197	54		38		#153	101			#861	90
Internal Link Dist (ft)		109			55			576			151	
Turn Bay Length (ft)							315					
Base Capacity (vph)	197	199	633		103		287	2546			1033	952
Starvation Cap Reductn	0	0	0		0		0	0			0	0
Spillback Cap Reductn	0	0	0		0		0	0			0	0
Storage Cap Reductn	0	0	0		0		0	0			0	0
Reduced v/c Ratio	0.83	0.81	0.41		0.32		0.72	0.32			1.05	0.37

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 77.3

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 34.6

Intersection LOS: C

Intersection Capacity Utilization 99.2%

ICU Level of Service F

Analysis Period (min) 15

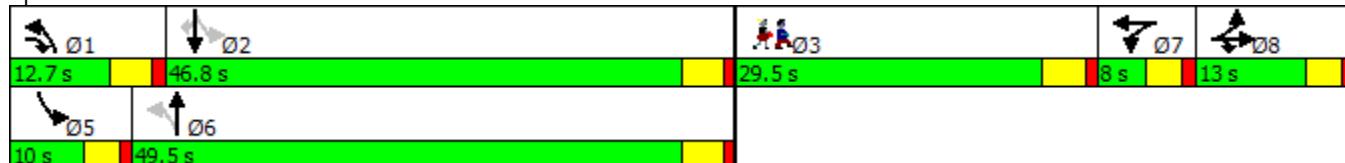
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: New Park Ave. & West Hartford Place/Private Dr.



Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor
2030 PM ALT3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑		↑↓		↑	↑↓			↓	↑
Traffic Volume (vph)	290	10	240	10	10	10	190	740	10	10	990	320
Future Volume (vph)	290	10	240	10	10	10	190	740	10	10	990	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		4.5	4.5			4.5	4.5
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	0.95			1.00	1.00
Frt	1.00	1.00	0.85		0.95		1.00	1.00			1.00	0.85
Flt Protected	0.95	0.96	1.00		0.98		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1698	1709	1583		1785		1787	3567			1899	1583
Flt Permitted	0.95	0.96	1.00		0.98		0.09	1.00			0.99	1.00
Satd. Flow (perm)	1698	1709	1583		1785		160	3567			1883	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	315	11	261	11	11	11	207	804	11	11	1076	348
RTOR Reduction (vph)	0	0	191	0	11	0	0	0	0	0	0	87
Lane Group Flow (vph)	164	162	70	0	22	0	207	815	0	0	1087	261
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	1%	1%	0%	0%	0%	2%
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	8	8	8 1	7	7		1	6		5	2	
Permitted Phases							6			2		2
Actuated Green, G (s)	9.0	9.0	21.2		2.3		55.1	55.1			42.4	42.4
Effective Green, g (s)	9.0	9.0	21.2		2.3		55.1	55.1			42.4	42.4
Actuated g/C Ratio	0.11	0.11	0.27		0.03		0.70	0.70			0.54	0.54
Clearance Time (s)	4.0	4.0			4.0		4.5	4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	193	194	425		52		280	2491			1011	850
v/s Ratio Prot	c0.10	0.09	0.04		c0.01		c0.08	0.23				
v/s Ratio Perm							0.44				c0.58	0.17
v/c Ratio	0.85	0.84	0.17		0.43		0.74	0.33			1.08	0.31
Uniform Delay, d1	34.3	34.2	22.1		37.7		20.8	4.7			18.3	10.1
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	27.8	25.5	0.2		5.6		9.8	0.1			50.8	0.2
Delay (s)	62.1	59.7	22.3		43.3		30.6	4.7			69.0	10.3
Level of Service	E	E	C		D		C	A			E	B
Approach Delay (s)		43.7			43.3			10.0			54.8	
Approach LOS		D			D			A			D	
Intersection Summary												
HCM 2000 Control Delay			37.7				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			78.9				Sum of lost time (s)			21.5		
Intersection Capacity Utilization			99.2%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 PM ALT3

	↑	→	↓	↶	←	↷	↶	↑	↷	↓	↶	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑	↑↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	30	240	190	350	360	460	240	560	290	420	800	30
Future Volume (vph)	30	240	190	350	360	460	240	560	290	420	800	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	0		0	150		0	300		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	0.91	0.91	0.95	1.00	0.95	0.95
Frt		0.934				0.850		0.949			0.992	
Flt Protected	0.950			0.950			0.950	0.999		0.950		
Satd. Flow (prot)	1805	3338	0	1752	1881	1615	1626	3235	0	1805	3515	0
Flt Permitted	0.513			0.225			0.178	0.921		0.950		
Satd. Flow (perm)	975	3338	0	415	1881	1615	305	2982	0	1805	3515	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		145				329		86			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		282			376			280			429	
Travel Time (s)		6.4			8.5			6.4			9.8	
Peak Hour Factor	0.69	0.85	0.86	0.91	0.84	0.89	0.79	0.84	0.81	0.89	0.94	0.59
Heavy Vehicles (%)	0%	1%	1%	3%	1%	0%	1%	1%	2%	0%	2%	0%
Adj. Flow (vph)	43	282	221	385	429	517	304	667	358	472	851	51
Shared Lane Traffic (%)						10%						
Lane Group Flow (vph)	43	503	0	385	429	517	274	1055	0	472	902	0
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6					
Detector Phase	7	4		3	8	8	1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	9.0		5.0	9.0	9.0	6.0	15.0		6.0	15.0	
Minimum Split (s)	9.5	14.0		9.5	14.0	14.0	10.5	20.1		10.5	20.1	
Total Split (s)	9.5	17.0		21.4	28.9	28.9	21.6	30.9		31.2	40.5	
Total Split (%)	8.6%	15.5%		19.5%	26.3%	26.3%	19.6%	28.1%		28.4%	36.8%	
Maximum Green (s)	5.0	12.0		17.4	23.9	23.9	17.6	25.8		27.2	35.4	
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.6		3.0	3.6	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes				Yes	
Vehicle Extension (s)	3.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)	19.7	12.0		43.9	35.4	66.6	42.9	40.7		27.2	37.0	
Actuated g/C Ratio	0.18	0.11		0.40	0.32	0.61	0.39	0.37		0.25	0.34	
v/c Ratio	0.19	1.02		0.78	0.71	0.47	0.88	0.89		1.06	0.76	
Control Delay	25.3	80.7		39.0	42.2	6.0	55.3	32.9		99.6	37.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	25.3	80.7		39.0	42.2	6.0	55.3	32.9		99.6	37.8	
LOS	C	F		D	D	A	E	C		F	D	
Approach Delay		76.4			27.2			37.5			59.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	9.5
Total Split (s)	9.5
Total Split (%)	9%
Maximum Green (s)	5.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 PM ALT3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		E			C			D			E	
Queue Length 50th (ft)	19	~146		206	281	61	139	255		~367	302	
Queue Length 95th (ft)	32	#228		#344	#402	140	#209	290		#558	382	
Internal Link Dist (ft)		202			296			200			349	
Turn Bay Length (ft)	50						150			300		
Base Capacity (vph)	228	493		492	605	1107	334	1191		446	1186	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.19	1.02		0.78	0.71	0.47	0.82	0.89		1.06	0.76	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 45.6

Intersection LOS: D

Intersection Capacity Utilization 92.5%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: New Park Ave. & Flatbush Ave./Flatbush Ave.



Lane Group	Ø9
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor
2030 PM ALT3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑	↑↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	30	240	190	350	360	460	240	560	290	420	800	30
Future Volume (vph)	30	240	190	350	360	460	240	560	290	420	800	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	0.91	0.91		1.00	0.95	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	3339		1752	1881	1615	1626	3234		1805	3513	
Flt Permitted	0.51	1.00		0.22	1.00	1.00	0.18	0.92		0.95	1.00	
Satd. Flow (perm)	974	3339		415	1881	1615	304	2984		1805	3513	
Peak-hour factor, PHF	0.69	0.85	0.86	0.91	0.84	0.89	0.79	0.84	0.81	0.89	0.94	0.59
Adj. Flow (vph)	43	282	221	385	429	517	304	667	358	472	851	51
RTOR Reduction (vph)	0	127	0	0	0	142	0	55	0	0	4	0
Lane Group Flow (vph)	43	376	0	385	429	375	274	1000	0	472	898	0
Heavy Vehicles (%)	0%	1%	1%	3%	1%	0%	1%	1%	2%	0%	2%	0%
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6					
Actuated Green, G (s)	18.6	13.8		44.7	35.4	62.6	40.0	40.0		27.2	35.2	
Effective Green, g (s)	18.6	13.8		44.7	35.4	62.6	40.0	40.0		27.2	35.2	
Actuated g/C Ratio	0.17	0.13		0.41	0.32	0.57	0.36	0.36		0.25	0.32	
Clearance Time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	200	418		495	605	992	302	1121		446	1124	
v/s Ratio Prot	0.01	0.11	c0.19	0.23	0.12	0.13	0.13		c0.26	0.26		
v/s Ratio Perm	0.03		c0.13		0.11	c0.20	0.19					
v/c Ratio	0.21	0.90		0.78	0.71	0.38	0.91	0.89		1.06	0.80	
Uniform Delay, d1	38.9	47.4		25.9	32.8	13.0	27.8	33.0		41.4	34.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	21.1		6.9	3.1	0.1	28.4	9.0		58.9	6.0	
Delay (s)	39.4	68.6		32.8	35.9	13.1	56.2	42.0		100.3	40.1	
Level of Service	D	E		C	D	B	E	D		F	D	
Approach Delay (s)		66.3			26.2			44.9			60.8	
Approach LOS		E			C			D			E	
Intersection Summary												
HCM 2000 Control Delay		46.8										D
HCM 2000 Volume to Capacity ratio		0.97										
Actuated Cycle Length (s)		110.0										23.1
Intersection Capacity Utilization		92.5%										F
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 PM ALT3

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↔		↑	↑		↔	↑↑	↑
Traffic Volume (vph)	20	0	810	10	0	0	580	460	10	0	540	10
Future Volume (vph)	20	0	810	10	0	0	580	460	10	0	540	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	0		80
Storage Lanes	1		2	0		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850					0.996				0.850
Flt Protected	0.950				0.950		0.950					
Satd. Flow (prot)	1805	0	2787	0	1805	0	1787	1874	0	0	3574	1615
Flt Permitted	0.950				0.950		0.206					
Satd. Flow (perm)	1805	0	2787	0	1805	0	388	1874	0	0	3574	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			910						1			200
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		506			113			633			446	
Travel Time (s)		11.5			2.6			14.4			10.1	
Peak Hour Factor	0.67	0.92	0.89	0.50	0.50	0.92	0.95	0.86	0.75	0.25	0.90	0.75
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	0%	0%	1%	0%
Adj. Flow (vph)	30	0	910	20	0	0	611	535	13	0	600	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	0	910	0	20	0	611	548	0	0	600	13
Turn Type	Prot		custom	Split	NA		custom	NA			NA	Prot
Protected Phases	8		1 8	4	4			1 6			2	2
Permitted Phases							6			2		
Detector Phase	8		1 8	4	4		6	1 6		2	2	2
Switch Phase												
Minimum Initial (s)	10.0			5.0	5.0		15.0			15.0	15.0	15.0
Minimum Split (s)	15.0			24.1	24.1		21.3			21.3	21.3	21.3
Total Split (s)	24.1			24.1	24.1		33.9			21.9	21.9	21.9
Total Split (%)	23.2%			23.2%	23.2%		32.6%			21.0%	21.0%	21.0%
Maximum Green (s)	19.1			18.0	18.0		27.6			15.6	15.6	15.6
Yellow Time (s)	3.0			3.0	3.0		3.0			3.0	3.0	3.0
All-Red Time (s)	2.0			3.1	3.1		3.3			3.3	3.3	3.3
Lost Time Adjust (s)	0.0			0.0	0.0		0.0			0.0	0.0	0.0
Total Lost Time (s)	5.0			6.1	6.1		6.3			6.3	6.3	6.3
Lead/Lag			Lag		Lag				Lag	Lag	Lag	
Lead-Lag Optimize?			Yes		Yes				Yes	Yes	Yes	
Vehicle Extension (s)	2.0			2.0	2.0		3.0			3.0	3.0	3.0
Recall Mode	None			None	None		Max			None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	10.3		20.4		5.4		27.9	27.2			15.7	15.7
Actuated g/C Ratio	0.20		0.40		0.10		0.54	0.53			0.30	0.30
v/c Ratio	0.08		0.55		0.11		2.92	0.56			0.55	0.02
Control Delay	19.3		2.7		24.1		895.8	12.1			18.2	0.1
Queue Delay	0.0		0.0		0.0		0.0	0.0			0.0	0.0

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Fr _t		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	12.0	22.0
Total Split (s)	12.0	22.0
Total Split (%)	12%	21%
Maximum Green (s)	5.0	18.0
Yellow Time (s)	3.0	4.0
All-Red Time (s)	4.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	2.0	3.0
Recall Mode	None	None
Walk Time (s)		5.0
Flash Dont Walk (s)		12.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 PM ALT3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	19.3		2.7		24.1		895.8	12.1			18.2	0.1
LOS	B		A		C		F	B			B	A
Approach Delay		3.2			24.1			477.9			17.8	
Approach LOS		A			C			F			B	
Queue Length 50th (ft)	7		0		5		~260	86			72	0
Queue Length 95th (ft)	22		35		14		#557	241			157	0
Internal Link Dist (ft)		426			33			553			366	
Turn Bay Length (ft)							200					80
Base Capacity (vph)	674		1650		635		209	986			1091	631
Starvation Cap Reductn	0		0		0		0	0			0	0
Spillback Cap Reductn	0		0		0		0	0			0	0
Storage Cap Reductn	0		0		0		0	0			0	0
Reduced v/c Ratio	0.04		0.55		0.03		2.92	0.56			0.55	0.02

Intersection Summary

Area Type: Other

Cycle Length: 104.1

Actuated Cycle Length: 51.6

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 2.92

Intersection Signal Delay: 208.0

Intersection LOS: F

Intersection Capacity Utilization 70.4%

ICU Level of Service C

Analysis Period (min) 15

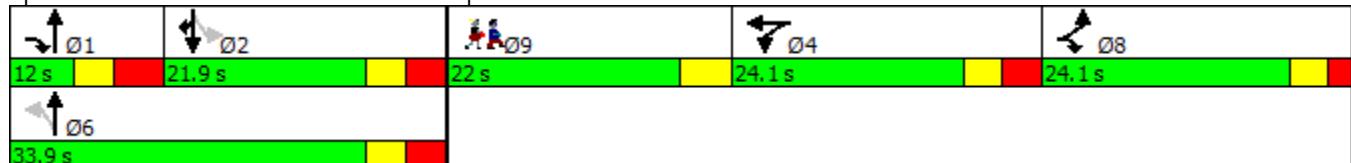
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: New Park Ave. & Prospect Ave./Private Dr.



Lane Group	Ø1	Ø9
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor
2030 PM ALT3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↔		↑	↑		↑↑	↑↑	↑
Traffic Volume (vph)	20	0	810	10	0	0	580	460	10	0	540	10
Future Volume (vph)	20	0	810	10	0	0	580	460	10	0	540	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			7.0		6.1		6.3	7.0		6.3	6.3
Lane Util. Factor	1.00			0.88		1.00		1.00	1.00		0.95	1.00
Frt	1.00			0.85		1.00		1.00	1.00		1.00	0.85
Flt Protected	0.95			1.00		0.95		0.95	1.00		1.00	1.00
Satd. Flow (prot)	1805			2787		1805		1787	1875		3574	1615
Flt Permitted	0.95			1.00		0.95		0.21	1.00		1.00	1.00
Satd. Flow (perm)	1805			2787		1805		388	1875		3574	1615
Peak-hour factor, PHF	0.67	0.92	0.89	0.50	0.50	0.92	0.95	0.86	0.75	0.25	0.90	0.75
Adj. Flow (vph)	30	0	910	20	0	0	611	535	13	0	600	13
RTOR Reduction (vph)	0	0	664	0	0	0	0	1	0	0	0	9
Lane Group Flow (vph)	30	0	246	0	20	0	611	547	0	0	600	4
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	0%	0%	1%	0%
Turn Type	Prot		custom	Split	NA		custom	NA			NA	Prot
Protected Phases	8		1 8	4	4				1 6		2	2
Permitted Phases							6			2		
Actuated Green, G (s)	10.3		20.3		1.0		27.9	27.9			15.9	15.9
Effective Green, g (s)	10.3		15.3		1.0		27.9	27.9			15.9	15.9
Actuated g/C Ratio	0.18		0.27		0.02		0.49	0.49			0.28	0.28
Clearance Time (s)	5.0				6.1		6.3				6.3	6.3
Vehicle Extension (s)	2.0				2.0		3.0				3.0	3.0
Lane Grp Cap (vph)	328		753		31		191	924			1004	453
v/s Ratio Prot	0.02		c0.09		c0.01			0.29			0.17	0.00
v/s Ratio Perm							c1.57					
v/c Ratio	0.09		0.33		0.65		3.20	0.59			0.60	0.01
Uniform Delay, d1	19.3		16.5		27.6		14.4	10.3			17.6	14.7
Progression Factor	1.00		1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.0		0.1		29.6		1003.1	0.7			1.0	0.0
Delay (s)	19.3		16.6		57.2		1017.4	11.0			18.5	14.7
Level of Service	B		B		E		F	B			B	B
Approach Delay (s)		16.7			57.2			541.5			18.5	
Approach LOS		B			E		F				B	
Intersection Summary												
HCM 2000 Control Delay		240.0			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		3.30										
Actuated Cycle Length (s)		56.6			Sum of lost time (s)			28.4				
Intersection Capacity Utilization		70.4%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

Appendix G

Intersection Capacity Analysis Worksheets
Alternatives 3&4 Traffic Volumes
Saturday Peak Hour

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 Sat ALT3

	↑	→	↓	↗	↖	↙	↖	↗	↑	↗	↖	↓	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↑	↑↓			↑↓	↑		↑↓		↑↓			
Traffic Volume (vph)	340	790	0	0	870	480	0	0	0	480	0	370	
Future Volume (vph)	340	790	0	0	870	480	0	0	0	480	0	370	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	10	10	12	12	12	12	12	12	12	11	12	11	
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.95	
Frt						0.850						0.935	
Flt Protected	0.950											0.972	
Satd. Flow (prot)	1668	3336	0	0	3574	1599	0	1900	0	0	3230	0	
Flt Permitted	0.108											0.972	
Satd. Flow (perm)	190	3336	0	0	3574	1599	0	1900	0	0	3230	0	
Right Turn on Red			Yes			No			Yes			Yes	
Satd. Flow (RTOR)												152	
Link Speed (mph)	30				30			30				30	
Link Distance (ft)	386				245			138				237	
Travel Time (s)	8.8				5.6			3.1				5.4	
Peak Hour Factor	0.92	0.95	0.75	0.25	0.91	0.86	0.25	0.25	0.25	0.89	0.50	0.91	
Heavy Vehicles (%)	1%	1%	67%	50%	1%	1%	0%	0%	33%	2%	100%	1%	
Adj. Flow (vph)	370	832	0	0	956	558	0	0	0	539	0	407	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	370	832	0	0	956	558	0	0	0	0	946	0	
Turn Type	D.P+P	NA			NA	pt+ov				Split	NA		
Protected Phases	1	1 2			2	2 4	5	5		4	4		
Permitted Phases	2			2									
Detector Phase	1	1 2		2	2	2 4	5	5		4	4		
Switch Phase													
Minimum Initial (s)	5.0				15.0	15.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.0				22.9	22.9		13.0	13.0		13.0	13.0	
Total Split (s)	26.0				45.0	45.0		13.0	13.0		36.0	36.0	
Total Split (%)	17.3%				30.0%	30.0%		8.7%	8.7%		24.0%	24.0%	
Maximum Green (s)	22.0				37.1	37.1		5.0	5.0		28.0	28.0	
Yellow Time (s)	3.0				3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0				4.9	4.9		5.0	5.0		5.0	5.0	
Lost Time Adjust (s)	0.0				0.0			0.0			0.0		
Total Lost Time (s)	4.0				7.9			8.0			8.0		
Lead/Lag	Lead				Lag	Lag				Lag	Lag		
Lead-Lag Optimize?	Yes				Yes	Yes				Yes	Yes		
Vehicle Extension (s)	1.5				2.5	2.5		1.5	1.5		1.5	1.5	
Recall Mode	None				C-Max	C-Max		None	None		None	None	
Walk Time (s)													
Flash Dont Walk (s)													
Pedestrian Calls (#/hr)													
Act Effct Green (s)	77.3	81.3			37.1	101.8						56.7	
Actuated g/C Ratio	0.52	0.54			0.25	0.68						0.38	
v/c Ratio	0.81	0.46			1.08	0.51						0.72	
Control Delay	53.7	21.9			107.3	14.1						36.8	
Queue Delay	0.0	0.0			0.0	0.0						0.0	
Total Delay	53.7	21.9			107.3	14.1						36.8	
LOS	D	C			F	B						D	

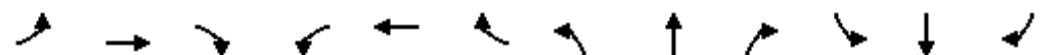
Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	20%
Maximum Green (s)	26.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	19.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	

Lanes, Volumes, Timings

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 Sat ALT3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		31.7			72.9						36.8	
Approach LOS			C		E						D	
Queue Length 50th (ft)	288	255			-548	249					352	
Queue Length 95th (ft)	#439	306			#686	318					171	
Internal Link Dist (ft)		306			165			58			157	
Turn Bay Length (ft)												
Base Capacity (vph)	455	1808			883	1085					1315	
Starvation Cap Reductn	0	0			0	0					0	
Spillback Cap Reductn	0	0			0	0					0	
Storage Cap Reductn	0	0			0	0					0	
Reduced v/c Ratio	0.81	0.46			1.08	0.51					0.72	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 50.1

Intersection LOS: D

Intersection Capacity Utilization 89.1%

ICU Level of Service E

Analysis Period (min) 15

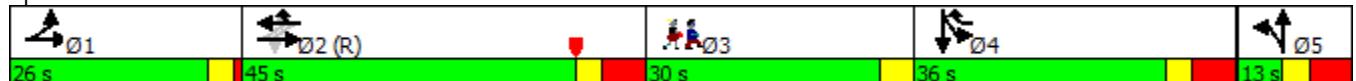
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: New Park Ave. & New Britain Ave.



Lane Group	Ø3
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

1: New Park Ave. & New Britain Ave.

New Park Avenue Corridor

2030 Sat ALT3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑			↑↑	↑		↑		↑↑	↑↑	
Traffic Volume (vph)	340	790	0	0	870	480	0	0	0	480	0	370
Future Volume (vph)	340	790	0	0	870	480	0	0	0	480	0	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12	12	12	12	11	12	11
Total Lost time (s)	4.0	4.0			7.9	7.9					8.0	
Lane Util. Factor	1.00	0.95			0.95	1.00					0.95	
Frt	1.00	1.00			1.00	0.85					0.94	
Flt Protected	0.95	1.00			1.00	1.00					0.97	
Satd. Flow (prot)	1668	3336			3574	1599					3233	
Flt Permitted	0.11	1.00			1.00	1.00					0.97	
Satd. Flow (perm)	189	3336			3574	1599					3233	
Peak-hour factor, PHF	0.92	0.95	0.75	0.25	0.91	0.86	0.25	0.25	0.25	0.89	0.50	0.91
Adj. Flow (vph)	370	832	0	0	956	558	0	0	0	539	0	407
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	95	0
Lane Group Flow (vph)	370	832	0	0	956	558	0	0	0	0	851	0
Heavy Vehicles (%)	1%	1%	67%	50%	1%	1%	0%	0%	33%	2%	100%	1%
Turn Type	D.P+P	NA			NA	pt+ov				Split	NA	
Protected Phases	1	1 2			2	2 4	5	5		4	4	
Permitted Phases	2		2									
Actuated Green, G (s)	73.4	77.4			37.1	101.7					56.7	
Effective Green, g (s)	73.4	77.4			37.1	101.7					56.7	
Actuated g/C Ratio	0.49	0.52			0.25	0.68					0.38	
Clearance Time (s)	4.0				7.9						8.0	
Vehicle Extension (s)	1.5				2.5						1.5	
Lane Grp Cap (vph)	450	1721			883	1084					1222	
v/s Ratio Prot	c0.20	0.25			c0.27	0.35					c0.26	
v/s Ratio Perm	0.20											
v/c Ratio	0.82	0.48			1.08	0.51					0.70	
Uniform Delay, d1	41.7	23.4			56.5	11.9					39.4	
Progression Factor	1.00	1.00			1.00	1.00					1.00	
Incremental Delay, d2	11.0	0.1			55.2	0.2					1.4	
Delay (s)	52.7	23.5			111.6	12.1					40.8	
Level of Service	D	C			F	B					D	
Approach Delay (s)		32.5			75.0				0.0		40.8	
Approach LOS		C			E				A		D	
Intersection Summary												
HCM 2000 Control Delay		52.2			HCM 2000 Level of Service				D			
HCM 2000 Volume to Capacity ratio		0.93										
Actuated Cycle Length (s)		150.0			Sum of lost time (s)				31.9			
Intersection Capacity Utilization		89.1%			ICU Level of Service				E			
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 Sat ALT3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	200	110	100	720	780	260
Future Volume (vph)	200	110	100	720	780	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	150		0	
Storage Lanes	1	1	1		1	
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Fr _t		0.850			0.850	
Flt Protected	0.950			0.994		
Satd. Flow (prot)	1787	1615	0	3557	1881	1615
Flt Permitted	0.950			0.606		
Satd. Flow (perm)	1787	1615	0	2168	1881	1615
Right Turn on Red		Yes			Yes	
Satd. Flow (RTOR)		143			295	
Link Speed (mph)	30			30	30	
Link Distance (ft)	297			639	425	
Travel Time (s)	6.8			14.5	9.7	
Peak Hour Factor	0.94	0.77	0.88	0.81	0.88	0.88
Heavy Vehicles (%)	1%	0%	0%	1%	1%	0%
Adj. Flow (vph)	213	143	114	889	886	295
Shared Lane Traffic (%)						
Lane Group Flow (vph)	213	143	0	1003	886	295
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases				2		2
Detector Phase	4	4	1	1 2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		30.0	30.0
Minimum Split (s)	14.0	14.0	12.0		36.0	36.0
Total Split (s)	16.0	16.0	12.0		47.0	47.0
Total Split (%)	21.3%	21.3%	16.0%		62.7%	62.7%
Maximum Green (s)	10.0	10.0	8.0		41.0	41.0
Yellow Time (s)	4.0	4.0	3.0		4.0	4.0
All-Red Time (s)	2.0	2.0	1.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0
Recall Mode	None	None	None		Max	Max
Act Effct Green (s)	10.0	10.0		51.0	41.0	41.0
Actuated g/C Ratio	0.13	0.13		0.68	0.55	0.55
v/c Ratio	0.89	0.42		0.62	0.86	0.29
Control Delay	71.7	10.1		6.1	25.6	2.0
Queue Delay	0.0	0.0		0.0	33.4	0.0
Total Delay	71.7	10.1		6.1	59.0	2.0
LOS	E	B		A	E	A
Approach Delay	47.0			6.1	44.7	



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach LOS	D			A	D	
Queue Length 50th (ft)	99	0		71	326	0
Queue Length 95th (ft)	#219	31		82	#556	29
Internal Link Dist (ft)	217			559	345	
Turn Bay Length (ft)						
Base Capacity (vph)	238	339		1622	1028	1016
Starvation Cap Reductn	0	0		0	194	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.89	0.42		0.62	1.06	0.29

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 29.8 Intersection LOS: C

Intersection Capacity Utilization 88.3% ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: New Park Ave. & Talcott Rd.



HCM Signalized Intersection Capacity Analysis
2: New Park Ave. & Talcott Rd.

New Park Avenue Corridor
2030 Sat ALT3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	200	110	100	720	780	260
Future Volume (vph)	200	110	100	720	780	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.99	1.00	1.00
Satd. Flow (prot)	1787	1615		3558	1881	1615
Flt Permitted	0.95	1.00		0.61	1.00	1.00
Satd. Flow (perm)	1787	1615		2167	1881	1615
Peak-hour factor, PHF	0.94	0.77	0.88	0.81	0.88	0.88
Adj. Flow (vph)	213	143	114	889	886	295
RTOR Reduction (vph)	0	124	0	0	0	134
Lane Group Flow (vph)	213	19	0	1003	886	161
Heavy Vehicles (%)	1%	0%	0%	1%	1%	0%
Turn Type	Prot	Prot	D.P+P	NA	NA	Perm
Protected Phases	4	4	1	1 2	2	
Permitted Phases			2		2	
Actuated Green, G (s)	10.0	10.0		49.0	41.0	41.0
Effective Green, g (s)	10.0	10.0		49.0	41.0	41.0
Actuated g/C Ratio	0.13	0.13		0.65	0.55	0.55
Clearance Time (s)	6.0	6.0			6.0	6.0
Vehicle Extension (s)	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	238	215		1564	1028	882
v/s Ratio Prot	c0.12	0.01		c0.07	c0.47	
v/s Ratio Perm			0.35		0.10	
v/c Ratio	0.89	0.09		0.64	0.86	0.18
Uniform Delay, d1	32.0	28.5		7.8	14.6	8.6
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	32.4	0.2		1.0	9.5	0.5
Delay (s)	64.3	28.7		8.8	24.1	9.0
Level of Service	E	C		A	C	A
Approach Delay (s)	50.0			8.8	20.3	
Approach LOS	D			A	C	
Intersection Summary						
HCM 2000 Control Delay		19.9		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.84				
Actuated Cycle Length (s)		75.0		Sum of lost time (s)		16.0
Intersection Capacity Utilization		88.3%		ICU Level of Service		E
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 Sat ALT3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	0	60	0	150	10	860	60	180	980	10
Future Volume (vph)	10	0	0	60	0	150	10	860	60	180	980	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	0	0	0	250		100
Storage Lanes	0	0	0	0	1	0	0	0	0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95
Fr _t						0.850		0.990			0.998	
Flt Protected		0.950			0.950			0.999		0.950		
Satd. Flow (prot)	0	1805	0	0	1736	1583	0	3561	0	1770	3603	0
Flt Permitted		0.698			0.749			0.922		0.184		
Satd. Flow (perm)	0	1326	0	0	1368	1583	0	3286	0	343	3603	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					231			20			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		156			393			425			656	
Travel Time (s)		3.5			8.9			9.7			14.9	
Peak Hour Factor	0.75	0.38	0.47	0.66	0.50	0.65	0.50	0.86	0.80	0.90	0.78	0.50
Heavy Vehicles (%)	0%	0%	0%	4%	0%	2%	0%	0%	4%	2%	0%	0%
Adj. Flow (vph)	13	0	0	91	0	231	20	1000	75	200	1256	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	13	0	0	91	231	0	1095	0	200	1276	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4		4	2			2		
Detector Phase	4	4		4	4	4	2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		5.0	8.0	
Minimum Split (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		9.5	12.0	
Total Split (s)	12.0	12.0		12.0	12.0	12.0	32.0	32.0		11.0	32.0	
Total Split (%)	21.8%	21.8%		21.8%	21.8%	21.8%	58.2%	58.2%		20.0%	58.2%	
Maximum Green (s)	8.0	8.0		8.0	8.0	8.0	28.0	28.0		6.5	28.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.5	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)	4.0			4.0	4.0		4.0			4.5	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None	None	None	None		None	None	
Act Effct Green (s)		8.2			8.2	8.2		27.0		31.1	27.0	
Actuated g/C Ratio		0.16			0.16	0.16		0.53		0.61	0.53	
v/c Ratio		0.06			0.42	0.52		0.63		0.54	0.67	
Control Delay		21.2			28.1	8.7		11.1		10.3	11.7	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		21.2			28.1	8.7		11.1		10.3	11.7	
LOS		C			C	A		B		B	B	
Approach Delay		21.2			14.1			11.1			11.5	

Lanes, Volumes, Timings

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 Sat ALT3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			B			B			B	
Queue Length 50th (ft)		4			28	0		120		16	147	
Queue Length 95th (ft)		7			34	15		166		47	168	
Internal Link Dist (ft)		76			313			345			576	
Turn Bay Length (ft)											250	
Base Capacity (vph)	211				217	446		1840		394	2010	
Starvation Cap Reductn	0				0	0		0		0	0	
Spillback Cap Reductn	0				0	0		0		0	0	
Storage Cap Reductn	0				0	0		0		0	0	
Reduced v/c Ratio		0.06				0.42	0.52		0.60		0.51	0.63

Intersection Summary

Area Type: Other

Cycle Length: 55

Actuated Cycle Length: 51.3

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 11.7

Intersection LOS: B

Intersection Capacity Utilization 70.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: New Park Ave. & Colt Dr./Oakwood Ave.



HCM Signalized Intersection Capacity Analysis

3: New Park Ave. & Colt Dr./Oakwood Ave.

New Park Avenue Corridor

2030 Sat ALT3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	0	60	0	150	10	860	60	180	980	10
Future Volume (vph)	10	0	0	60	0	150	10	860	60	180	980	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0		4.0		4.5	4.0
Lane Util. Factor		1.00				1.00	1.00		0.95		1.00	0.95
Frt		1.00				1.00	0.85		0.99		1.00	1.00
Flt Protected		0.95				0.95	1.00		1.00		0.95	1.00
Satd. Flow (prot)		1805				1736	1583		3560		1770	3602
Flt Permitted		0.70				0.75	1.00		0.92		0.18	1.00
Satd. Flow (perm)		1326				1368	1583		3284		343	3602
Peak-hour factor, PHF	0.75	0.38	0.47	0.66	0.50	0.65	0.50	0.86	0.80	0.90	0.78	0.50
Adj. Flow (vph)	13	0	0	91	0	231	20	1000	75	200	1256	20
RTOR Reduction (vph)	0	0	0	0	0	195	0	10	0	0	2	0
Lane Group Flow (vph)	0	13	0	0	91	36	0	1085	0	200	1274	0
Heavy Vehicles (%)	0%	0%	0%	4%	0%	2%	0%	0%	4%	2%	0%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4				4			2		1	2
Permitted Phases	4			4			4	2			2	
Actuated Green, G (s)		8.2			8.2	8.2		27.0		31.6	27.0	
Effective Green, g (s)		8.2			8.2	8.2		27.0		31.6	27.0	
Actuated g/C Ratio		0.16				0.16	0.16		0.52		0.60	0.52
Clearance Time (s)		4.0				4.0	4.0		4.0		4.5	4.0
Vehicle Extension (s)		4.0				4.0	4.0		4.0		3.0	4.0
Lane Grp Cap (vph)	207			214	248		1695		332	1859		
v/s Ratio Prot										c0.05	c0.35	
v/s Ratio Perm		0.01			c0.07	0.02		0.33		0.31		
v/c Ratio		0.06			0.43	0.15		0.64		0.60	0.69	
Uniform Delay, d1		18.8			19.9	19.0		9.1		5.6	9.5	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.2			1.9	0.4		0.9		3.1	1.2	
Delay (s)		19.0			21.8	19.4		10.1		8.7	10.6	
Level of Service		B			C	B		B		A	B	
Approach Delay (s)		19.0			20.1			10.1			10.4	
Approach LOS		B			C			B			B	
Intersection Summary												
HCM 2000 Control Delay		11.4			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.62										
Actuated Cycle Length (s)		52.3			Sum of lost time (s)			12.5				
Intersection Capacity Utilization		70.6%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 Sat ALT3

	↑	→	↓	↶	←	↷	↶	↑	↷	↓	↶	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↔	↑				↑	↔			↑	↑
Traffic Volume (vph)	380	10	370	10	10	10	320	690	20	10	720	430
Future Volume (vph)	380	10	370	10	10	10	320	690	20	10	720	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	315		0	100		0
Storage Lanes	1		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Fr _t			0.850		0.955			0.996				0.850
Flt Protected	0.950	0.955			0.984		0.950				0.999	
Satd. Flow (prot)	1698	1708	1583	0	1785	0	1787	3561	0	0	1898	1583
Flt Permitted	0.950	0.955			0.984		0.090				0.988	
Satd. Flow (perm)	1698	1708	1583	0	1785	0	169	3561	0	0	1877	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			402			11			3			350
Link Speed (mph)			30			30			30			30
Link Distance (ft)			189			135			656			224
Travel Time (s)			4.3			3.1			14.9			5.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	1%	1%	0%	0%	0%	2%
Adj. Flow (vph)	413	11	402	11	11	11	348	750	22	11	783	467
Shared Lane Traffic (%)	49%											
Lane Group Flow (vph)	211	213	402	0	33	0	348	772	0	0	794	467
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	8	8	8 1	7	7		1	6		5	2	2 8
Permitted Phases							6			2		
Detector Phase	8	8	8 1	7	7		1	6		5	2	2 8
Switch Phase												
Minimum Initial (s)	6.0	6.0		4.0	4.0		5.0	5.0		6.0		5.0
Minimum Split (s)	10.0	10.0		8.0	8.0		9.5	22.5		10.0		22.5
Total Split (s)	21.0	21.0		8.0	8.0		20.0	71.5		10.0		61.5
Total Split (%)	15.0%	15.0%		5.7%	5.7%		14.3%	51.1%		7.1%		43.9%
Maximum Green (s)	17.0	17.0		4.0	4.0		15.5	67.0		6.0		57.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.5	3.5		3.0		3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0		1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		
Total Lost Time (s)	4.0	4.0		4.0			4.5	4.5				4.5
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		3.0
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								11.0			11.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	17.3	17.3	37.6		4.1		70.3	70.3			50.0	68.8
Actuated g/C Ratio	0.17	0.17	0.37		0.04		0.70	0.70			0.50	0.68
v/c Ratio	0.73	0.73	0.48		0.40		0.94	0.31			0.85	0.39
Control Delay	57.8	57.9	4.8		52.9		61.1	6.3			32.5	2.1
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0			0.0	0.0

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr _t	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	29.5
Total Split (s)	29.5
Total Split (%)	21%
Maximum Green (s)	25.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	4.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings

4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor

2030 Sat ALT3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	57.8	57.9	4.8		52.9		61.1	6.3			32.5	2.1
LOS	E	E	A		D		E	A			C	A
Approach Delay		32.0			52.9			23.4			21.2	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	149	150	0		15		174	98			454	16
Queue Length 95th (ft)	#282	#286	66		#52		#373	126			639	39
Internal Link Dist (ft)		109			55			576			144	
Turn Bay Length (ft)							315					
Base Capacity (vph)	291	292	842		82		371	2594			1079	1202
Starvation Cap Reductn	0	0	0		0		0	0			0	0
Spillback Cap Reductn	0	0	0		0		0	0			0	0
Storage Cap Reductn	0	0	0		0		0	0			0	0
Reduced v/c Ratio	0.73	0.73	0.48		0.40		0.94	0.30			0.74	0.39

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 100.6

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 25.1

Intersection LOS: C

Intersection Capacity Utilization 86.4%

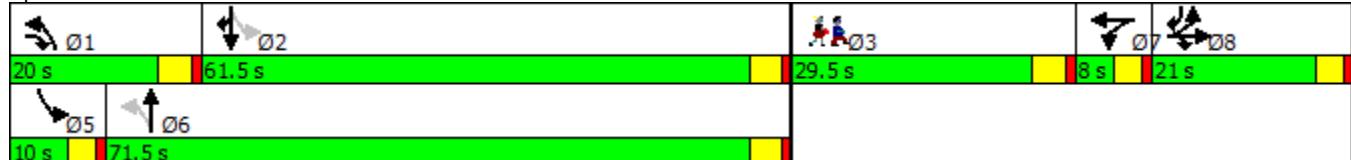
ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: New Park Ave. & West Hartford Place/Private Dr.



Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
4: New Park Ave. & West Hartford Place/Private Dr.

New Park Avenue Corridor
2030 Sat ALT3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑		↑↓		↑	↑↓			↓	↑
Traffic Volume (vph)	380	10	370	10	10	10	320	690	20	10	720	430
Future Volume (vph)	380	10	370	10	10	10	320	690	20	10	720	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		4.5	4.5			4.5	4.5
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	0.95			1.00	1.00
Frt	1.00	1.00	0.85		0.95		1.00	1.00			1.00	0.85
Flt Protected	0.95	0.95	1.00		0.98		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1698	1707	1583		1785		1787	3560			1899	1583
Flt Permitted	0.95	0.95	1.00		0.98		0.09	1.00			0.99	1.00
Satd. Flow (perm)	1698	1707	1583		1785		169	3560			1877	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	413	11	402	11	11	11	348	750	22	11	783	467
RTOR Reduction (vph)	0	0	257	0	11	0	0	1	0	0	0	119
Lane Group Flow (vph)	211	213	145	0	22	0	348	771	0	0	794	348
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	1%	1%	0%	0%	0%	2%
Turn Type	Split	NA	pt+ov	Split	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	8	8	8 1	7	7		1	6		5	2	2 8
Permitted Phases							6			2		
Actuated Green, G (s)	17.3	17.3	37.0		2.2		70.3	70.3			50.1	67.4
Effective Green, g (s)	17.3	17.3	37.0		2.2		70.3	70.3			50.1	67.4
Actuated g/C Ratio	0.17	0.17	0.36		0.02		0.69	0.69			0.49	0.66
Clearance Time (s)	4.0	4.0			4.0		4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	287	288	572		38		364	2446			919	1042
v/s Ratio Prot	0.12	c0.12	0.09		c0.01		c0.15	0.22				0.22
v/s Ratio Perm							c0.51				0.42	
v/c Ratio	0.74	0.74	0.25		0.59		0.96	0.32			0.86	0.33
Uniform Delay, d1	40.3	40.4	23.0		49.6		30.9	6.4			23.1	7.6
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	9.4	9.6	0.2		20.9		35.4	0.1			8.5	0.2
Delay (s)	49.7	49.9	23.2		70.5		66.4	6.5			31.6	7.8
Level of Service	D	D	C		E		E	A			C	A
Approach Delay (s)		36.9			70.5			25.1			22.8	
Approach LOS		D			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			27.6		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			102.3		Sum of lost time (s)				21.5			
Intersection Capacity Utilization			86.4%		ICU Level of Service				E			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 Sat ALT3

	↑	→	↓	↗	↖	↙	↖	↗	↑	↓	↗	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑	↑↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	30	170	240	380	220	450	220	550	320	400	600	20
Future Volume (vph)	30	170	240	380	220	450	220	550	320	400	600	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	0		0	150		0	410		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	0.91	0.91	0.95	1.00	0.95	0.95
Fr _t		0.913				0.850		0.945			0.992	
Flt Protected	0.950			0.950			0.950	0.999		0.950		
Satd. Flow (prot)	1805	3263	0	1752	1881	1615	1626	3221	0	1805	3514	0
Flt Permitted	0.597			0.244			0.396	0.932		0.950		
Satd. Flow (perm)	1134	3263	0	450	1881	1615	678	3005	0	1805	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		254				345		107			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		282			376			277			400	
Travel Time (s)		6.4			8.5			6.3			9.1	
Peak Hour Factor	0.69	0.85	0.86	0.91	0.84	0.89	0.79	0.84	0.81	0.89	0.94	0.59
Heavy Vehicles (%)	0%	1%	1%	3%	1%	0%	1%	1%	2%	0%	2%	0%
Adj. Flow (vph)	43	200	279	418	262	506	278	655	395	449	638	34
Shared Lane Traffic (%)						10%						
Lane Group Flow (vph)	43	479	0	418	262	506	250	1078	0	449	672	0
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6					
Detector Phase	7	4		3	8	8	1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	9.0		5.0	9.0	9.0	6.0	15.0		6.0	15.0	
Minimum Split (s)	9.5	14.0		9.5	14.0	14.0	10.5	20.1		10.5	20.1	
Total Split (s)	9.8	16.0		24.0	30.2	30.2	23.0	30.0		30.5	37.5	
Total Split (%)	8.9%	14.5%		21.8%	27.5%	27.5%	20.9%	27.3%		27.7%	34.1%	
Maximum Green (s)	5.3	11.0		20.0	25.2	25.2	19.0	24.9		26.5	32.4	
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.6		3.0	3.6	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes				Yes	
Vehicle Extension (s)	3.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Act Effct Green (s)	16.3	10.5		35.5	28.7	59.2	38.8	36.6		26.5	38.6	
Actuated g/C Ratio	0.16	0.10		0.36	0.29	0.59	0.39	0.37		0.26	0.39	
v/c Ratio	0.20	0.84		1.00	0.49	0.46	0.65	0.90		0.94	0.49	
Control Delay	25.7	34.9		73.0	34.6	5.3	22.2	31.9		66.2	25.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	25.7	34.9		73.0	34.6	5.3	22.2	31.9		66.2	25.5	
LOS	C	C		E	C	A	C	C		E	C	
Approach Delay		34.1			35.6			30.1			41.8	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	9.5
Total Split (s)	9.5
Total Split (%)	9%
Maximum Green (s)	5.0
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings

5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor

2030 Sat ALT3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	18	74		223	146	48	85	214		282	167	
Queue Length 95th (ft)	32	#121		#419	210	112	116	248		#467	244	
Internal Link Dist (ft)		202			296			197			320	
Turn Bay Length (ft)	50						150			410		
Base Capacity (vph)	220	585		420	539	1095	484	1192		477	1359	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.82		1.00	0.49	0.46	0.52	0.90		0.94	0.49	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 100

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 35.3

Intersection LOS: D

Intersection Capacity Utilization 92.9%

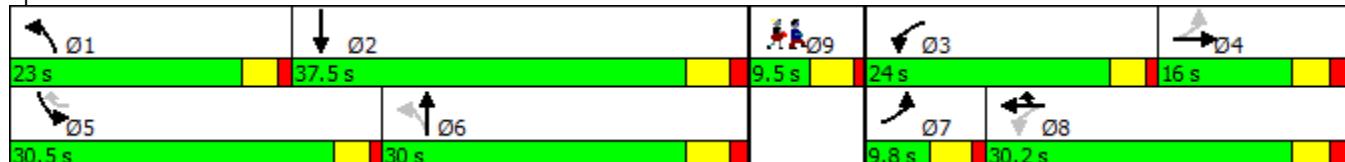
ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: New Park Ave. & Flatbush Ave./Flatbush Ave.



Lane Group	Ø9
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
5: New Park Ave. & Flatbush Ave./Flatbush Ave.

New Park Avenue Corridor
2030 Sat ALT3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑	↑↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	30	170	240	380	220	450	220	550	320	400	600	20
Future Volume (vph)	30	170	240	380	220	450	220	550	320	400	600	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	0.91	0.91		1.00	0.95	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	3262		1752	1881	1615	1626	3220		1805	3516	
Flt Permitted	0.60	1.00		0.24	1.00	1.00	0.40	0.93		0.95	1.00	
Satd. Flow (perm)	1135	3262		450	1881	1615	678	3006		1805	3516	
Peak-hour factor, PHF	0.69	0.85	0.86	0.91	0.84	0.89	0.79	0.84	0.81	0.89	0.94	0.59
Adj. Flow (vph)	43	200	279	418	262	506	278	655	395	449	638	34
RTOR Reduction (vph)	0	223	0	0	0	158	0	67	0	0	3	0
Lane Group Flow (vph)	43	256	0	418	262	348	250	1011	0	449	669	0
Heavy Vehicles (%)	0%	1%	1%	3%	1%	0%	1%	1%	2%	0%	2%	0%
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8	8	1	6		5	2	
Permitted Phases	4			8		5	6					
Actuated Green, G (s)	15.6	12.4		36.4	28.7	55.2	37.7	37.7		26.5	38.6	
Effective Green, g (s)	15.6	12.4		36.4	28.7	55.2	37.7	37.7		26.5	38.6	
Actuated g/C Ratio	0.15	0.12		0.36	0.28	0.54	0.37	0.37		0.26	0.38	
Clearance Time (s)	4.5	5.0		4.0	5.0	5.0	4.0	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	194	396		416	529	954	369	1139		469	1331	
v/s Ratio Prot	0.01	0.08	c0.20	0.14	0.10	0.08	0.11		c0.25	0.19		
v/s Ratio Perm	0.03		c0.16		0.11	0.17	c0.22					
v/c Ratio	0.22	0.65		1.00	0.50	0.36	0.68	0.89		0.96	0.50	
Uniform Delay, d1	37.4	42.7		28.8	30.6	13.3	23.9	30.1		37.1	24.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	2.7		45.3	0.3	0.1	3.9	8.4		30.4	1.4	
Delay (s)	38.0	45.4		74.1	30.8	13.4	27.8	38.5		67.5	25.6	
Level of Service	D	D	E	C	B	C	D		E	C		
Approach Delay (s)		44.8			38.7			36.5			42.4	
Approach LOS		D		D			D			D		
Intersection Summary												
HCM 2000 Control Delay		39.7										D
HCM 2000 Volume to Capacity ratio		1.05										
Actuated Cycle Length (s)		101.9										23.1
Intersection Capacity Utilization		92.9%										F
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 Sat ALT3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↓		↑	↑		↑↑	↑↑	↑
Traffic Volume (vph)	20	0	590	0	0	10	510	470	0	10	430	10
Future Volume (vph)	20	0	590	0	0	10	510	470	0	10	430	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	0		80
Storage Lanes	1		2	0		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Fr _t			0.850		0.865							0.850
Flt Protected	0.950						0.950					0.996
Satd. Flow (prot)	1805	0	2787	0	1644	0	1787	1881	0	0	3563	1615
Flt Permitted	0.950						0.247					0.868
Satd. Flow (perm)	1805	0	2787	0	1644	0	465	1881	0	0	3105	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			663			657						200
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		506			113			663			446	
Travel Time (s)		11.5			2.6			15.1			10.1	
Peak Hour Factor	0.67	0.92	0.89	0.50	0.50	0.92	0.95	0.86	0.75	0.25	0.90	0.75
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	0%	0%	1%	0%
Adj. Flow (vph)	30	0	663	0	0	11	537	547	0	40	478	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	0	663	0	11	0	537	547	0	0	518	13
Turn Type	Prot		custom		NA		custom	NA		Perm	NA	custom
Protected Phases	8		1 8	4	4			1 6			2	2
Permitted Phases							6			2		2
Detector Phase	8		1 8	4	4		6	1 6		2	2	2
Switch Phase												
Minimum Initial (s)	10.0			5.0	5.0		15.0			15.0	15.0	15.0
Minimum Split (s)	15.0			24.1	24.1		21.3			21.3	21.3	21.3
Total Split (s)	24.1			24.1	24.1		33.9			21.9	21.9	21.9
Total Split (%)	23.2%			23.2%	23.2%		32.6%			21.0%	21.0%	21.0%
Maximum Green (s)	19.1			18.0	18.0		27.6			15.6	15.6	15.6
Yellow Time (s)	3.0			3.0	3.0		3.0			3.0	3.0	3.0
All-Red Time (s)	2.0			3.1	3.1		3.3			3.3	3.3	3.3
Lost Time Adjust (s)	0.0			0.0	0.0		0.0			0.0	0.0	0.0
Total Lost Time (s)	5.0			6.1	6.1		6.3			6.3	6.3	6.3
Lead/Lag			Lag		Lag				Lag	Lag	Lag	
Lead-Lag Optimize?			Yes		Yes				Yes	Yes	Yes	
Vehicle Extension (s)	2.0			2.0	2.0		3.0			3.0	3.0	3.0
Recall Mode	None			None	None		Max			None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	10.1		20.1		5.0		27.8	27.1			15.7	15.7
Actuated g/C Ratio	0.20		0.39		0.10		0.54	0.53			0.31	0.31
v/c Ratio	0.08		0.44		0.01		2.13	0.55			0.54	0.02
Control Delay	19.2		2.4		0.0		538.7	11.6			18.1	0.1
Queue Delay	0.0		0.0		0.0		0.0	0.0			0.0	0.0

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Fr _t		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	12.0	22.0
Total Split (s)	12.0	22.0
Total Split (%)	12%	21%
Maximum Green (s)	5.0	18.0
Yellow Time (s)	3.0	4.0
All-Red Time (s)	4.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	2.0	3.0
Recall Mode	None	None
Walk Time (s)		5.0
Flash Dont Walk (s)		12.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		

Lanes, Volumes, Timings

6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 Sat ALT3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	19.2		2.4		0.0		538.7	11.6			18.1	0.1
LOS	B		A		A		F	B			B	A
Approach Delay		3.2						272.7			17.6	
Approach LOS		A						F			B	
Queue Length 50th (ft)	7		0		0		~185	86			62	0
Queue Length 95th (ft)	21		31		0		#438	223			133	0
Internal Link Dist (ft)		426			33			583			366	
Turn Bay Length (ft)							200					80
Base Capacity (vph)	679		1499		1007		252	996			953	634
Starvation Cap Reductn	0		0		0		0	0			0	0
Spillback Cap Reductn	0		0		0		0	0			0	0
Storage Cap Reductn	0		0		0		0	0			0	0
Reduced v/c Ratio	0.04		0.44		0.01		2.13	0.55			0.54	0.02

Intersection Summary

Area Type: Other

Cycle Length: 104.1

Actuated Cycle Length: 51.1

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 2.13

Intersection Signal Delay: 132.4

Intersection LOS: F

Intersection Capacity Utilization 62.9%

ICU Level of Service B

Analysis Period (min) 15

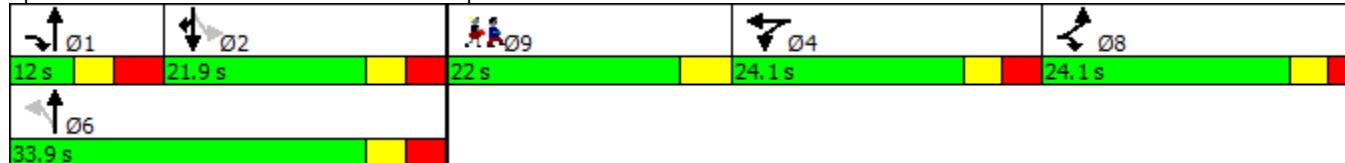
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: New Park Ave. & Prospect Ave./Private Dr.



Lane Group	Ø1	Ø9
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
6: New Park Ave. & Prospect Ave./Private Dr.

New Park Avenue Corridor

2030 Sat ALT3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑		↑↑		↓		↑	↑		↑	↑↑	↑
Traffic Volume (vph)	20	0	590	0	0	10	510	470	0	10	430	10
Future Volume (vph)	20	0	590	0	0	10	510	470	0	10	430	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		7.0		6.1		6.3	7.0			6.3	6.3
Lane Util. Factor	1.00		0.88		1.00		1.00	1.00			0.95	1.00
Frt	1.00		0.85		0.86		1.00	1.00			1.00	0.85
Flt Protected	0.95		1.00		1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1805		2787		1644		1787	1881			3563	1615
Flt Permitted	0.95		1.00		1.00		0.25	1.00			0.87	1.00
Satd. Flow (perm)	1805		2787		1644		464	1881			3105	1615
Peak-hour factor, PHF	0.67	0.92	0.89	0.50	0.50	0.92	0.95	0.86	0.75	0.25	0.90	0.75
Adj. Flow (vph)	30	0	663	0	0	11	537	547	0	40	478	13
RTOR Reduction (vph)	0	0	485	0	11	0	0	0	0	0	0	9
Lane Group Flow (vph)	30	0	178	0	0	0	537	547	0	0	518	4
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	0%	0%	1%	0%
Turn Type	Prot		custom		NA		custom	NA		Perm	NA	custom
Protected Phases	8		1 8	4	4				1 6		2	2
Permitted Phases							6			2		2
Actuated Green, G (s)	10.1		20.1		0.9		27.8	27.8			15.8	15.8
Effective Green, g (s)	10.1		15.1		0.9		27.8	27.8			15.8	15.8
Actuated g/C Ratio	0.18		0.27		0.02		0.49	0.49			0.28	0.28
Clearance Time (s)	5.0				6.1		6.3				6.3	6.3
Vehicle Extension (s)	2.0				2.0		3.0				3.0	3.0
Lane Grp Cap (vph)	324		748		26		229	930			872	454
v/s Ratio Prot	0.02		c0.06		c0.00			0.29				0.00
v/s Ratio Perm							c1.16				0.17	
v/c Ratio	0.09		0.24		0.01		2.34	0.59			0.59	0.01
Uniform Delay, d1	19.2		16.1		27.2		14.2	10.1			17.4	14.6
Progression Factor	1.00		1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.0		0.1		0.0		618.6	0.6			1.1	0.0
Delay (s)	19.3		16.1		27.2		632.8	10.7			18.5	14.6
Level of Service	B		B		C		F	B			B	B
Approach Delay (s)		16.3			27.2			318.9			18.4	
Approach LOS		B			C		F				B	
Intersection Summary												
HCM 2000 Control Delay		158.3			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		2.43										
Actuated Cycle Length (s)		56.2			Sum of lost time (s)			28.4				
Intersection Capacity Utilization		62.9%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

Appendix H

Right of Way Options

